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Agriculture Fact Book 1994



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Agriculture Fact Book 1994

**U.S. Department
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Foreword

by Ali Webb, Director of Communications

USDA is a primary source of factual information on all aspects of food and agriculture. This **Agriculture Fact Book** is intended as a handy reference tool. It offers one-stop-shopping for facts about U.S. agriculture, rural America, food, nutrition, consumer issues, and USDA programs. Its purpose is to help readers get the data and background they need on those subjects.

These facts are aimed primarily at journalists in print and broadcast media, editors, and editorial writers; students, researchers, and librarians; groups interested in farmer, consumer, rural development, and environmental issues; and the general public.

We asked representatives of these groups what information they wanted in the **Fact Book**, and this book responds to their needs. That's customer service. In fact, developing and disseminating information to the public is a long-standing activity of USDA, so we in USDA's Office of Communications believe that providing easy access to this information is an important function of customer service.

This book contains detailed information about many aspects of U.S. agriculture, including the U.S. farm sector, the structure of U.S. agriculture, and rural America.

It also describes programs in USDA's six mission areas: Rural Economic and Community Development; Farm and International Trade; Food, Nutrition, and Consumer Services; Natural Resources and Environment; Marketing and Inspection; and Science, Education, and Economics.

It serves as a gateway to additional, continuing sources of information, and includes a list of information personnel at USDA whose job it is to provide needed information.

■ Let us know what you want to know

We want to continue providing the customer service you need. If you have suggestions for improving this **Agriculture Fact Book**, please fill out the following questionnaire and send it to: Office of Public and Media Outreach, Office of Communications, U.S. Department of Agriculture, Washington, DC 20250.

- *What do you like about the **Agriculture Fact Book**?*
- *What don't you like about it?*
- *What aspects of food, agriculture, and rural America would you like to know more about?*
- *What other improvements do you suggest?*

Preface: Reinventing USDA

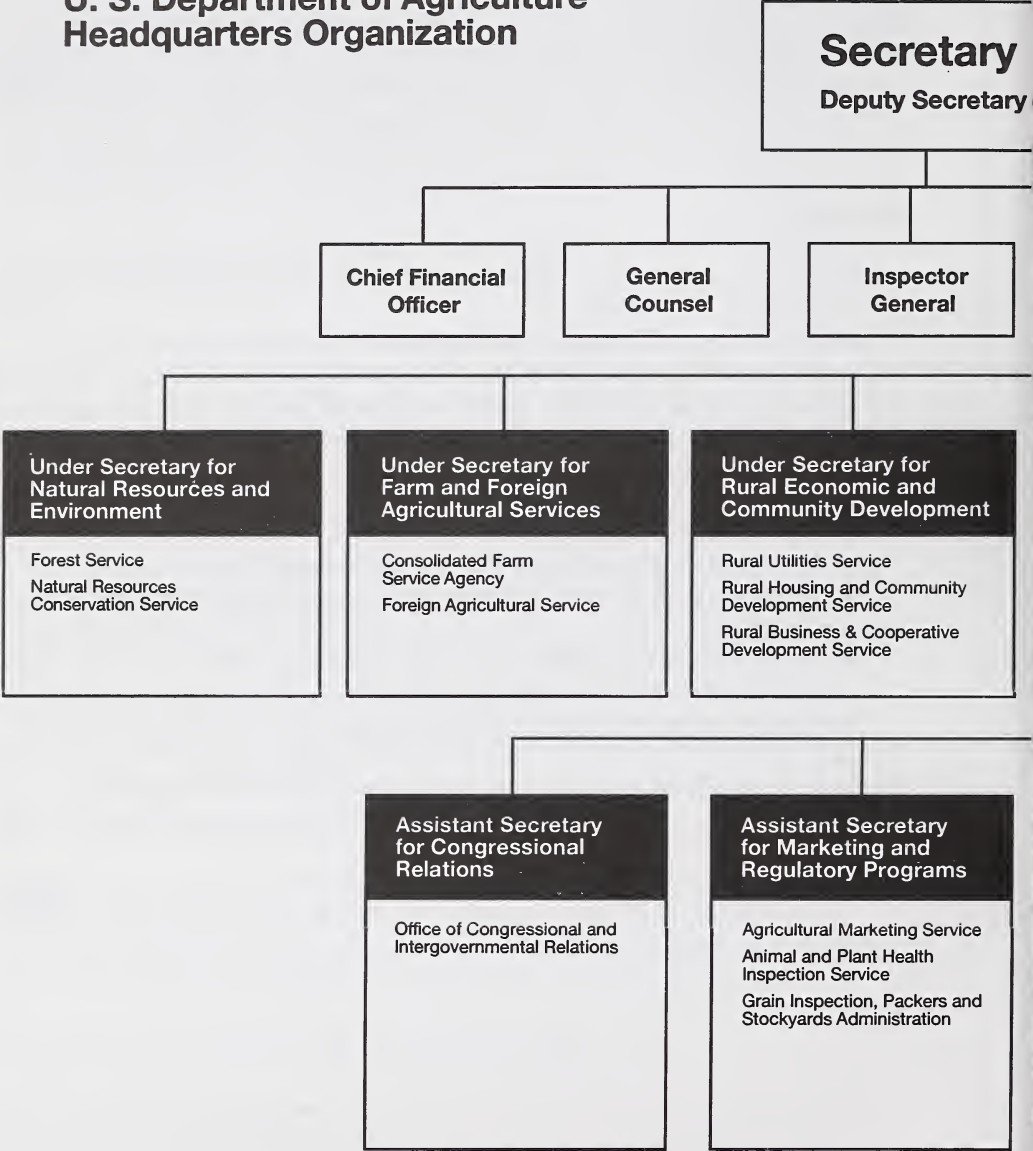
Secretary of Agriculture Mike Espy in 1993 directed USDA to achieve the most ambitious reorganization plan it has ever attempted. Because USDA's programs are so far-flung—from local county field offices to foreign countries—this may be the most extensive reinventing effort ever undertaken by the Federal Government.

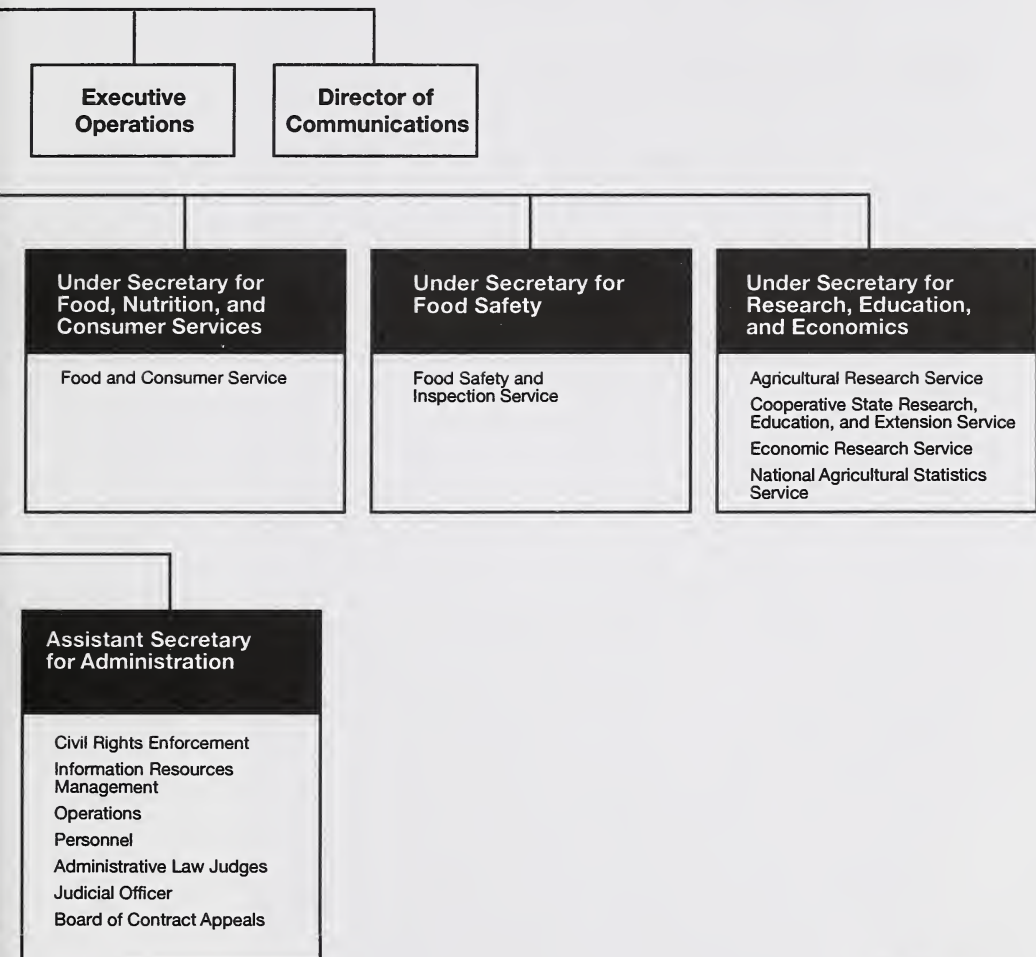
Congress passed the Department of Agriculture Reorganization Act of 1994 on October 4, 1994, and the President signed it into law on October 13, 1994. The reorganization will:

- Reduce the number of USDA agencies from 43 to 29,
- Close or consolidate approximately 1,100 field offices to provide “one-stop” shopping for customers,
- Save taxpayers \$3.6 billion over 5 years,
- Reduce staff by up to 11,000 over 5 years,
- Combine farmer programs under a new Consolidated Farm Service Agency,
- Maintain local farmer committees to oversee programs and encourage diversity in local farmer committee operations,
- Elevate USDA's food safety functions,
- Make rural development a priority,
- Strengthen USDA's natural resource conservation efforts,
- Strengthen Federal-State-local partnership in research, education, and extension,
- Require cost/benefit evaluations of major regulations, and
- Establish an independent appeals process.

The legislation authorizes six Under Secretary positions and three Assistant Secretary positions. The reinvented USDA structure, approved just as this **Agriculture Fact Book** was going to press, is depicted on the following pages

U. S. Department of Agriculture
Headquarters Organization





October 1994

U.S. Agriculture and Rural America

1. U.S. Agriculture—Linking Consumers and Producers

■ What Do Americans Eat?

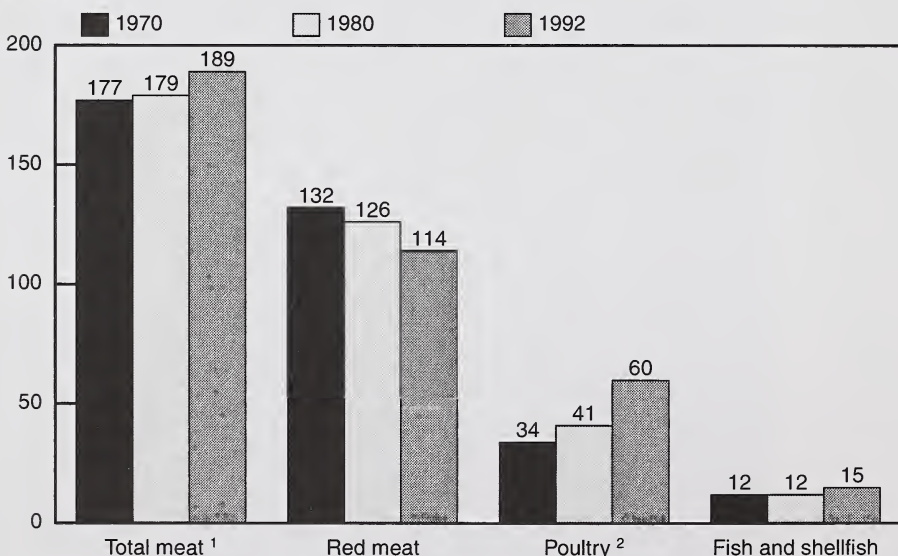
Americans consumed less red meat and more poultry and fish in 1992 than in previous years. Red meat accounted for 60 percent of the total meat supply (boneless, trimmed equivalent) in 1992, compared with 70 percent in 1980 and 74 percent in 1970. Chicken and turkey accounted for 32 percent of the total meat consumed in 1992, up from 23 percent in 1980 and 19 percent in 1970. In 1992, each American averaged 18 pounds less red meat, 26 pounds more poultry, and 3 pounds more fish and shellfish than in 1970.

Americans used less whole milk, animal fats, and eggs in 1992 than in 1970. A 43-percent increase in the use of vegetable fats and oils during 1970-92 more than offset a 26-percent decline in the use of animal fats. Increased consumption of cheese, cream products, and lowfat milk and yogurt moderated the decline in consumption of whole milk products. Consumption of yogurt increased more than five-fold during 1970-92, up to 4.3 pounds per person in 1992.

Figure 1.

Per capita consumption of meat, poultry, and fish, boneless, trimmed equivalent

Pounds



¹ Total may not add due to rounding. ² Includes skin, neck meat, and giblets.

Table 1.

Major foods: U.S. per capita consumption

<i>Food</i>	<i>1970</i>	<i>1980</i>	<i>1992</i>
		<i>Pounds</i>	
Red meat ¹	132	126	114
Chicken and turkey ¹	34	41	60
Fish and shellfish ¹	12	12	15
Eggs	40	35	30
Beverage milks	269	237	218
Whole	219	146	84
Lowfat and skim	50	91	134
Cheese ²	11	18	26
Ice cream	18	18	16
Fluid cream products	5	6	8
All dairy products ³	564	543	565
Fats and oils	53	57	65
Animal	14	12	10
Vegetable	39	45	55
Peanuts and tree nuts ⁴	7	7	9
Fruits and vegetables ⁵	566	594	650
Fruits	228	257	263
Vegetables	338	337	387
Caloric sweeteners ⁶	123	124	143
Refined sugar (sucrose)	102	84	65
Corn sweeteners	19	39	77
Other	2	1	1
Flour and cereal products ⁷	135	145	187
Wheat flour	111	117	138
Rice	7	9	17
Corn products	11	13	22
Oat products	4	4	9
Rye and barley	2	2	1
Chocolate liquor equivalent ⁸	3	3	4
		<i>Gallons</i>	
Coffee	33	27	28
Tea	7	7	7
Beer	19	24	23
Wine	1	2	2
Distilled spirits	2	2	1

¹Boneless, trimmed equivalent ²Excludes full-skim American, cottage, pot, and baker's cheese ³Milk equivalent, milkfat basis ⁴Shelled basis ⁵Farmgate weight ⁶Dry basis ⁷Consumption of items at the processing level (excludes quantities used in alcoholic beverages and corn sweeteners) ⁸What remains after cocoa beans have been roasted and hulled

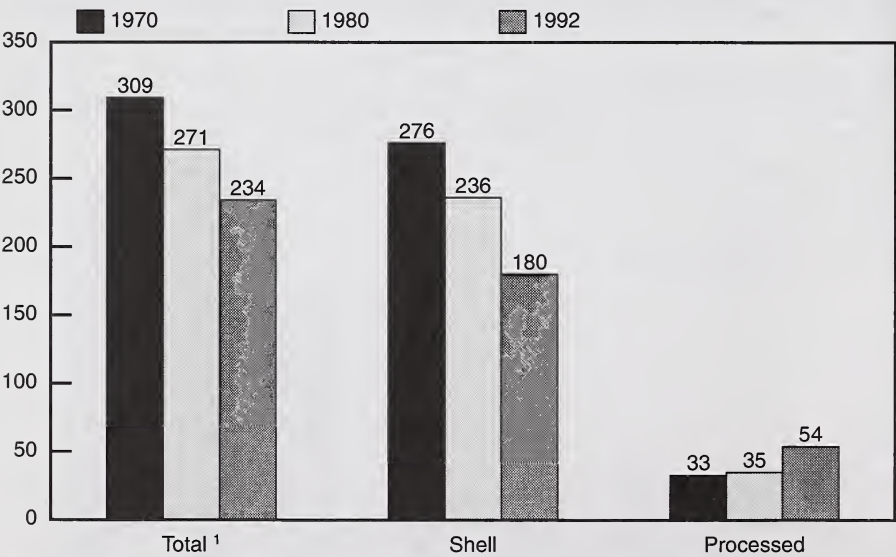
In 1992, each American consumed, on average, a record 143 pounds of caloric sweeteners (dry-weight basis)—comprised mainly of sucrose (table sugar made from cane and beets) and corn sweeteners (notably high-fructose corn syrup, called HFCS). About one-fifth of the added sugars in the U.S. food supply come in carbonated soft drinks. Added sugar is, in a sense, the number one food additive; it turns up in some unlikely places such as frozen pizza, wieners, lunch meats, boxed rice mixes, soup, crackers, spaghetti sauce, canned vegetables, and flavored yogurt as well as salad dressings, mayonnaise, peanut butter, and of course, what we call “sweets.” No wonder that for most Americans, more than half of the carbohydrate calories in their diet come from sugar instead of bread, cereal, rice, and pasta.

Consumption of grain products increased in recent years, after falling dramatically from the levels of the first half of the century. Per capita use of flour and cereal products was 187 pounds in 1992, compared with an annual average of 135 pounds in 1970-74, 204 pounds in 1945-49, and 287 pounds in 1910-15. Much of this growth was product-driven, as consumers gained appreciation for ready-to-eat and “instant” breakfast cereals, variety bread, hamburgers and other products made with buns sold through a rapidly expanding fast-food industry, and a broad range of other products that primarily have an ethnic origin. The expansion of in-store baking and other shifts in the retail marketplace all spurred this product-driven growth in grain-based foods.

Figure 2.

Per capita consumption of eggs

Number

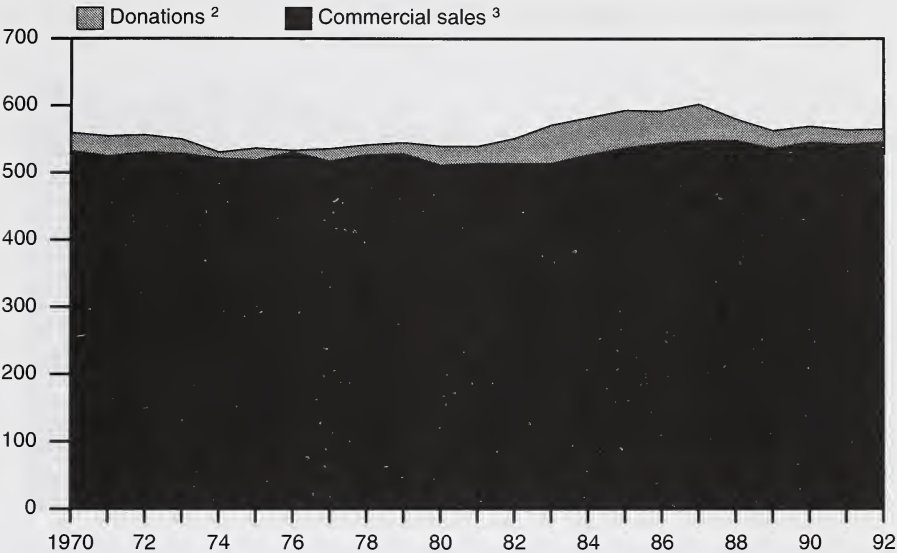


¹Total may not add due to rounding.

Figure 3.

Per capita consumption of all dairy products¹

Pounds



¹Milk-equivalent, milkfat basis. ²Includes donated butter, cheese, nonfat dry milk, and evaporated milk.

³Includes milk produced and consumed on farms.

Figure 4.

Per capita consumption of plain fluid milk

Pounds

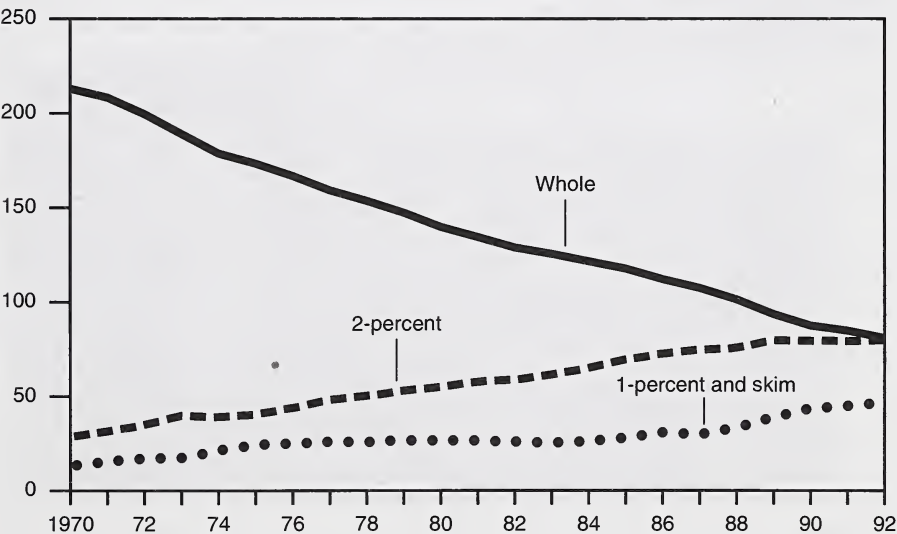
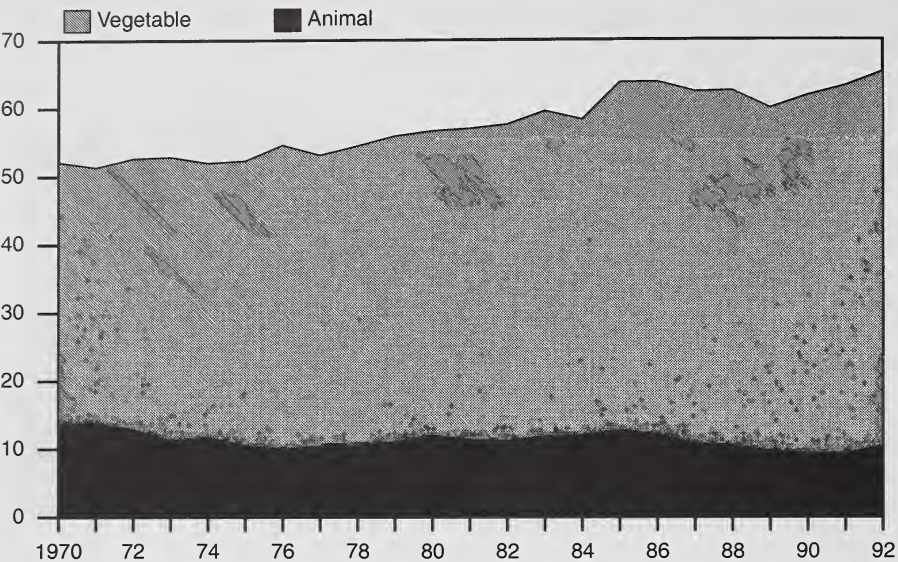


Figure 5.

Per capita consumption of food fats and oils¹

Pounds

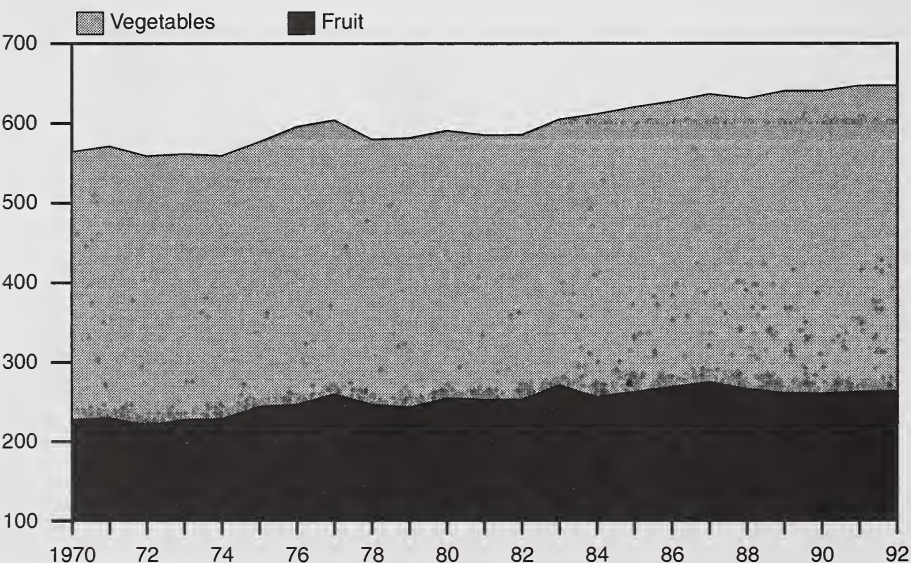


¹Fat-content basis. Includes butter, margarine, direct use of lard and edible tallow, shortening, salad and cooking oils, and other fats.

Figure 6.

Per capita consumption of fruits and vegetables¹

Pounds



¹Farm-weight equivalent.

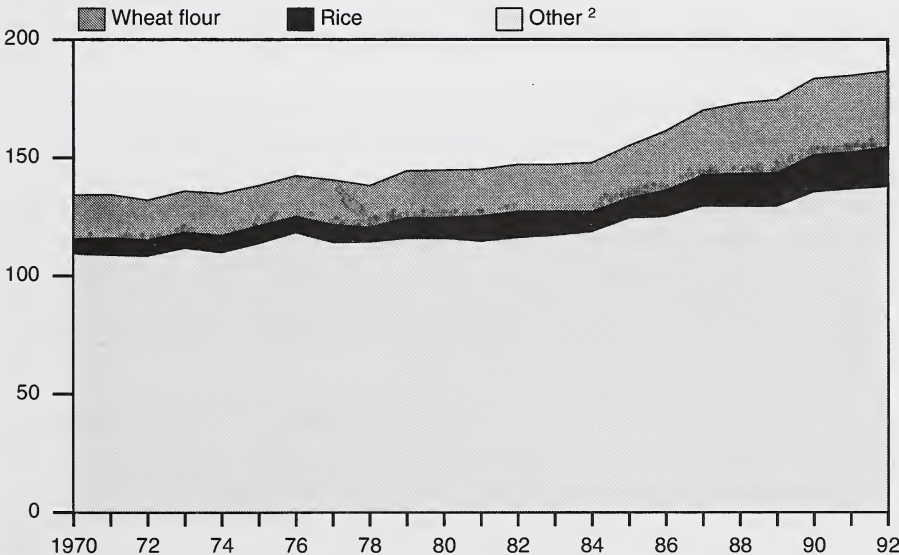
In 1992, each American consumed, on average, 650 pounds (farmgate weight) of commercially produced fruits (excluding wine grapes) and vegetables, 15 percent more than in 1970. Per capita consumption of fresh fruit and fruit for processing increased 22 percent and 10 percent, respectively, from 1970 to 1992. Declines in per capita use of canned fruit moderated significant increases in use of frozen fruit, juices, and dried fruit. Per capita use of fresh vegetables (excluding potatoes, sweet-potatoes, and pulses) increased 26 percent from 1970 to 1992. Per capita use of fresh potatoes declined 27 percent during 1970-92, as consumption of frozen potatoes more than doubled, to 26 pounds per person (retail weight) in 1992. Per capita use of dry edible beans, peas, and lentils jumped 17 percent between 1990 and 1992, as a result of growth in the popularity of Hispanic and Middle Eastern foods, increased consumer interest in boosting fiber intake, and consumers' efforts to economize on food spending in a sluggish economy.

USDA's Economic Research Service annually calculates the amount of food available for human consumption in the United States. The U.S. food supply historical series measures national aggregate consumption of several hundred foods. It is the only source of time series data on food and nutrient availability in the country.

Figure 7.

Per capita consumption of grain products¹

Pounds

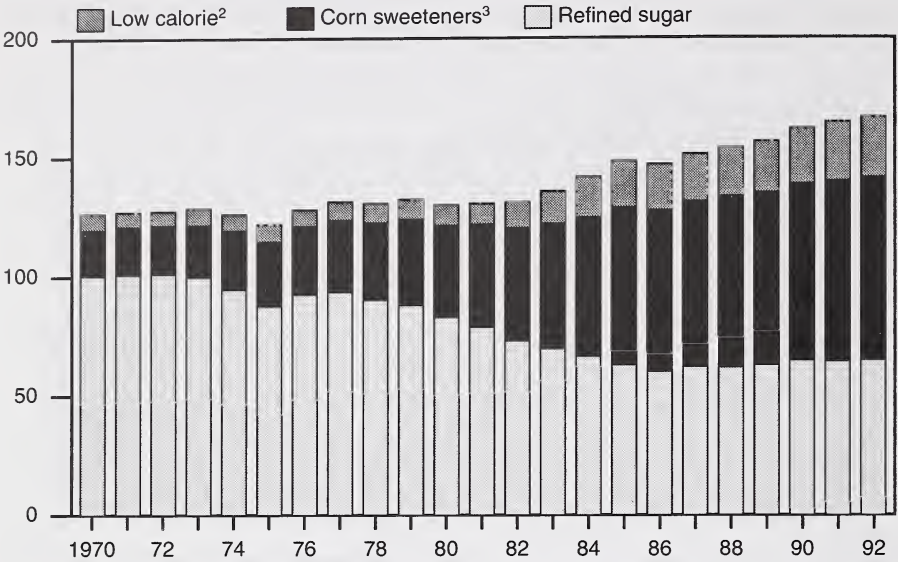


¹Excludes quantities used in alcoholic beverages, fuel, and corn sweeteners. ²Corn, oats, barley and rye.

Figure 8.

Per capita consumption of sweeteners¹

Pounds



¹Excludes small quantities of honey and syrup. ²Sugar-sweetness equivalent. ³Dry basis.

■ Cost of Food Services and Distribution

The estimated bill for marketing domestic farm foods—which does not include imported foods—was \$382 billion in 1993. This covered all charges for transporting, processing, and distributing foods that originated on U.S. farms. It represented 78 percent of the \$491 billion consumers spent for these foods. The remaining 22 percent, or \$109 billion, represented the gross return paid to farmers.

The cost of marketing farm foods has increased considerably over the years, mostly because of rising costs of labor, transportation, food packaging materials, and other inputs used in marketing, and also because of the growing volume of food and the increase in services provided with the food.

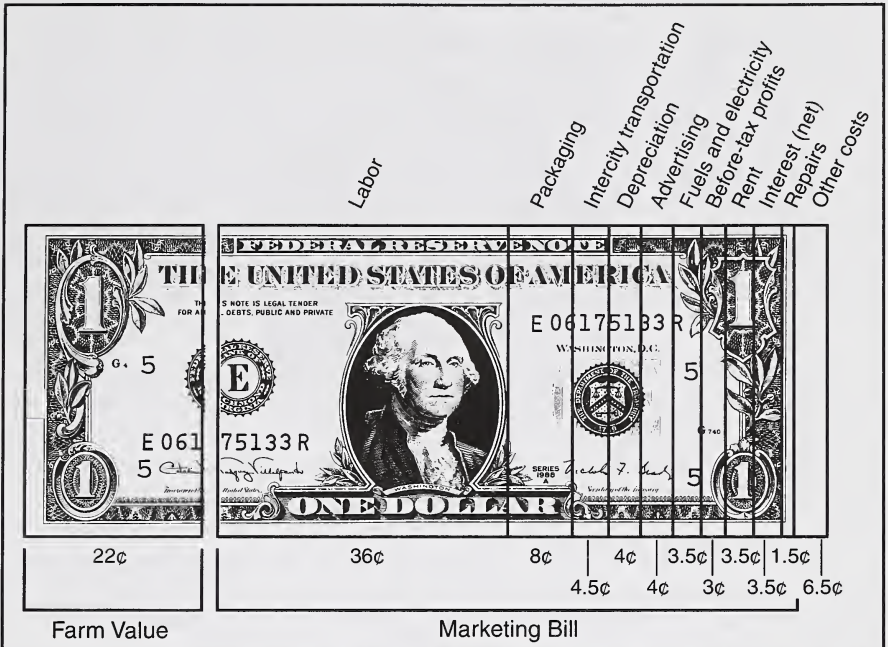
In 1983, the cost of marketing farm foods amounted to \$230 billion. In the decade after that, the cost of marketing rose about 65 percent. In 1993, the marketing bill rose 3.5 percent.

These rising costs have been the principal factor affecting the rise in consumer food expenditures. From 1983 to 1993, consumer expenditures for farm foods rose \$176 billion. About 85 percent of this increase resulted from an increase in the marketing bill.

The cost of labor is the biggest part of the total food marketing bill (see fig. 9). Labor used by assemblers, manufacturers, wholesalers, retailers, and eating places cost \$178 billion in 1993. This was 5 percent more than in 1992 and 75 percent more than in 1983. The total number of food marketing workers in 1993 was about 12.5

Figure 9.

What a dollar spent on food paid for in 1993



Includes food eaten at home and away from home. Other costs include property taxes and insurance, accounting and professional services, promotion, bad debts, and many miscellaneous items.

million, over 25 percent more than a decade ago. The growth in employment occurred mostly in food stores and public eating places.

Packaging is the second-largest component of the marketing bill, accounting for 8 cents of the food dollar. Costs of these materials rose only 3.5 percent in 1993. Packaging costs increased mainly because of increased use of shipping boxes, food containers, and plastic materials. Actual prices of boxes and food containers themselves were slightly lower, but their added use drove packaging costs up. Most other marketing costs—such as transportation and energy—rose at a slightly faster pace than in 1992.

Food Expenditures and Prices

Total food expenditures, which include imports, fishery products, and food originating on farms, were \$593.8 billion in 1992, an increase of 1.2 percent over those in 1991. The average was \$2,328 per capita, 0.6 percent above the 1991 average.

Away-from-home meals and snacks captured 45 percent of the U.S. food dollar in 1992, up from 39 percent in 1980 and 34 percent in 1970.

While personal food expenditures rose 1.6 percent, disposable personal income increased 6.4 percent from 1991 to 1992.

■ *Compared with people in other Nations, Americans spend the smallest share of their income on food they eat at home. U.S. consumers' at-home food expenditures in 1990 (the latest year for which comparable international information is available) as a proportion of personal consumption spending totaled 8 percent, compared with 11.0 percent for Canada, 11.8 percent for the United Kingdom, 14.8 percent for Australia, 16.2 percent for France, 18.3 percent for Italy, and 30 percent for the Commonwealth of Independent States (formerly the Soviet Union). In less developed countries, such as the Sudan, India, and the Philippines, at-home food expenditures often account for more than 50 percent of a household's budget.*

U.S. consumers in 1993 spent 11.2 percent of their disposable personal income (after taxes) on food. This figure compares with 11.8 percent in 1990, 13.5 percent in 1980, and 13.9 percent in 1970.

In the United States, retail food prices (including meals served in restaurants) rose 41.8 percent over the last 10 years (1983-93). Prices of food eaten away from home increased 43.2 percent, while retail foodstore prices increased 41.4 percent.

Prices of goods and services, excluding food, in the Consumer Price Index climbed 45.5 percent over the same 10 years. Transportation was up 31.3 percent; housing 41.9 percent; medical care 100.2 percent; and apparel and upkeep 33.4 percent.

■ **Farm-Retail Price Spread**

Food prices include payments for both the raw farm product and marketing services. In 1993, the farm value, or payment for the raw product, averaged 26 percent of the retail cost of a market basket of U.S. farm foods sold in foodstores. The other 74 percent, the farm-retail price spread, consisted of all processing, transportation, wholesaling, and retailing charges incurred after farm products leave the farm.

Over the past 10 years, the farm-retail spread has risen much more than the farm value; the farm share declined.

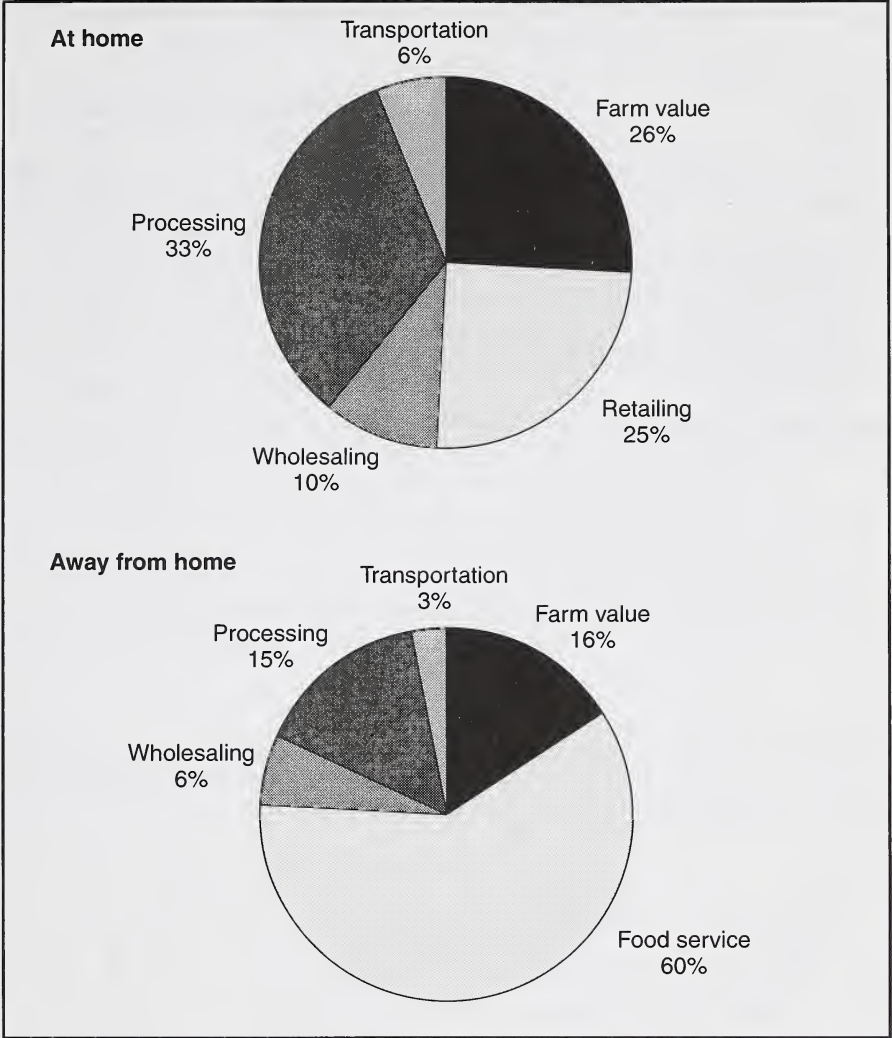
Farm-retail spreads have increased every year for the past 10 years, largely reflecting rising costs of labor, packaging, and other inputs. In 1993, farm-retail spreads rose 2.9 percent. Farmers received 1.6 percent more for food commodities in 1993 than they did the preceding year. Widening farm-retail spreads continued to push up food costs in 1993. The farm value is expected to decline slightly in 1994.

The portion of each food dollar spent in grocery stores that represents the farm value of the food was expected to average about 26 cents in 1994, down slightly from the year before. This share ranged from 26 to 35 percent during the past decade.

Figure 10.

Marketing functions of the food dollar in 1993

Processing remained the most expensive marketing function for food eaten at home.



The percentage of the retail price accounted for by farm value varies widely among foods, reflecting differences in production and marketing functions. It is larger for animal products than for crop-based foods. Farm value is a relatively small share of the retail selling price of foods that require considerable processing and packaging. The wide variation in the farm value share among major food groups in the farm food market baskets is shown in table 2.

Table 2.

Farm value as a percentage of retail price for domestically produced foods, 1983 and 1993

<i>Items</i>	<i>1983</i>	<i>1993</i>
	<i>Percent</i>	
Livestock products:		
Meats	49	40
Dairy	48	34
Poultry	53	44
Eggs	65	49
Crop products:		
Cereal and bakery	12	7
Fresh fruits	27	22
Fresh vegetables	34	26
Processed fruits and vegetables	23	19
Fats and oils	27	22
Market basket, average	34	26

2. Structure of U.S. Agriculture

■ Farming Regions

The 10 major farm production regions in the United States differ in soils, slope of land, climate, distance to market, and storage and marketing facilities. Together they comprise the agricultural face of the Nation.

The Northeastern States and the Lake States are the Nation's principal milk-producing areas. Climate and soil in these States are suited to raising grains and forage for cattle and for providing pastureland for grazing.

Broiler farming is important in Maine, Delaware, and Maryland. Fruit and vegetables also are important to the region.

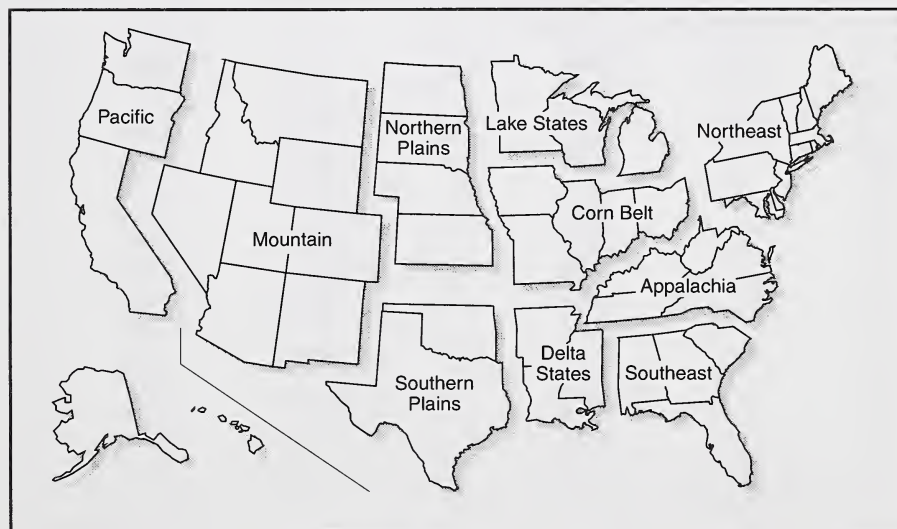
The Appalachian region is the major tobacco-producing region in the Nation. Peanuts, cattle, and dairy production are also important.

In the Southeast region, beef and broilers are important livestock products. Fruits, vegetables, and peanuts are grown in this region. Big citrus groves and winter vegetable production areas in Florida are major suppliers of agricultural goods.

In the Delta States, the principal cash crops are soybeans and cotton. Rice and sugarcane are also grown. With improved pastures, livestock production has gained in importance. This is a major broiler-producing region.

Figure 11.

U.S. farm production regions



The Corn Belt has rich soil and good climate for excellent farming. Corn, beef cattle, hogs, and dairy products are the major outputs of farms in the region. Other feed grains, soybeans, and wheat are also important.

Agriculture in the northern and southern Plains, which extend north and south from Canada to Mexico, is restricted by rainfall in the western portion and by cold winters and short growing seasons in the northern part. About three-fifths of the Nation's winter and spring wheat is produced in this region. Other small grains, grain sorghum, hay, forage crops, and pastures form the basis for raising cattle. Cotton is produced in the southern part.

The Mountain States provide a still different terrain. Vast areas of this region are suited to raising cattle and sheep. Wheat is important in the northern parts. Irrigation in the valleys provides water for such crops as hay, sugar beets, potatoes, fruits, and vegetables.

The Pacific region includes the three Pacific Coast States plus Alaska and Hawaii. Farmers in Washington and Oregon specialize in raising wheat, fruit, and potatoes; vegetables, fruit, and cotton are important in California. Cattle are raised throughout the entire region. In Hawaii, sugarcane and pineapples are the major crops. Greenhouse/nursery and dairy products are Alaska's top-ranking commodities.

■ Farms and Land in Farms

The United States had 2.068 million farms in 1993, down 1 percent from 1992. A farm is defined as any establishment from which \$1,000 or more of agricultural products were sold or would normally be sold during the year. The number of farms

Table 3.

Number of farms, land in farms, average farm size: United States, June 1, 1983-931

<i>Year</i>	<i>Number of Farms</i>	<i>Land in Farms</i>	<i>Average Farm Size</i>
	<i>1,000</i>	<i>1,000 Acres</i>	<i>Acres</i>
1983	2,379	1,023,425	430
1984	2,334	1,017,803	436
1985	2,293	1,012,073	441
1986	2,250	1,005,333	447
1987	2,213	998,923	451
1988	2,197	994,543	453
1989	2,171	991,153	457
1990	2,140	987,420	461
1991	2,105	982,766	467
1992	2,094	979,963	468
1993	2,068	978,153	473

¹A farm is any establishment from which \$1,000 or more of agricultural products were sold or would normally be sold during the year.

Source: U.S. Department of Agriculture, National Agricultural Statistics Service. *Farm Numbers and Land in Farms*

Table 4.

**Number of farms and land in farms, by State,
June 1, 1988-931**

	<i>Land in farms</i>			<i>Farms</i>		
	<i>1988</i>	<i>1989</i>	<i>1990</i>	<i>1988</i>	<i>1989</i>	<i>1990</i>
	<i>1,000 Acres</i>			<i>Number of Farms</i>		
AL	10,600	10,600	10,100	48,000	47,000	47,000
AK	1,030	1,010	1,000	620	600	580
AZ	36,500	36,000	36,000	8,100	8,100	7,800
AR	15,800	15,700	15,500	49,000	48,000	47,000
CA	31,600	31,300	30,800	84,000	84,000	85,000
CO	33,700	33,500	33,100	27,300	27,000	26,500
CT	440	440	420	4,000	4,000	3,900
DE	590	590	570	3,000	3,000	2,900
FL	11,500	11,200	10,900	41,000	41,000	41,000
GA	13,000	12,600	12,500	49,000	48,000	48,000
HI	1,720	1,720	1,710	4,650	4,650	4,600
ID	13,700	13,700	13,700	22,500	22,100	21,800
IL	28,600	28,500	28,500	88,000	86,000	83,000
IN	16,400	16,400	16,300	74,000	71,000	68,000
IA	33,500	33,500	33,500	107,000	105,000	104,000
KS	47,900	47,900	47,900	69,000	69,000	69,000
KY	14,300	14,200	14,100	97,000	95,000	93,000
LA	9,100	9,100	8,900	33,000	34,000	32,000
ME	1,450	1,450	1,450	7,300	7,300	7,200
MD	2,350	2,300	2,250	16,000	15,600	15,200
MA	680	680	680	6,900	6,900	6,900
MI	10,900	10,800	10,800	56,000	55,000	54,000
MN	30,000	30,000	30,000	92,000	90,000	89,000
MS	13,500	13,300	13,000	42,000	41,000	40,000
MO	30,500	30,400	30,400	110,000	109,000	108,000
MT	60,700	60,600	60,500	24,600	24,700	24,700
NE	47,100	47,100	47,100	58,000	57,000	57,000
NV	8,900	8,900	8,900	2,600	2,500	2,500
NH	510	500	490	3,200	3,100	2,900
NJ	880	880	870	8,300	8,300	8,100
NM	44,500	44,500	44,500	14,000	14,000	13,500
NY	8,600	8,400	8,400	41,000	39,000	38,500
NC	10,300	10,000	9,700	68,000	65,000	62,000
ND	40,600	40,500	40,500	33,500	33,500	34,000
OH	15,600	15,700	15,700	85,000	86,000	84,000
OK	33,000	33,000	33,000	70,000	70,000	70,000
OR	17,800	17,800	17,800	36,500	37,000	36,500
PA	8,300	8,200	8,100	55,000	54,000	53,000
RI	73	73	70	770	770	740
SC	5,300	5,300	5,200	26,000	25,500	25,000
SD	44,300	44,300	44,300	35,000	35,000	35,000
TN	12,600	12,600	12,400	91,000	91,000	89,000
TX	132,000	132,000	132,000	187,000	186,000	186,000
UT	11,300	11,300	11,300	13,300	13,000	13,200
VT	1,520	1,510	1,510	7,100	7,000	7,000
VA	9,100	9,000	8,900	48,000	47,000	46,000
WA	16,000	16,000	16,000	38,000	38,000	37,000
WV	3,700	3,700	3,700	21,000	21,000	20,500
WI	17,700	17,600	17,600	82,000	81,000	80,000
WY	34,800	34,800	34,800	8,900	8,900	8,900
US	994,543	991,153	987,420	2,197,140	2,170,520	2,140,420

See footnotes at end of table.

—continued

Table 4 continued.

**Number of farms and land in farms, by State,
June 1, 1988-931 (continued)**

	<i>Land in farms</i>			<i>Farms</i>		
	1991	1992	19932	1991	1992	19932
	<i>1,000 Acres</i>			<i>Number of Farms</i>		
AL	9,900	9,800	10,000	46,000	46,000	47,000
AK	980	960	950	560	540	540
AZ	36,000	36,000	36,000	8,000	8,000	7,900
AR	15,500	15,500	15,400	46,000	46,000	46,000
CA	30,300	29,800	29,700	83,000	80,000	76,000
CO	32,800	32,800	32,800	26,000	25,500	25,500
CT	420	410	410	3,900	4,000	4,000
DE	570	560	550	2,900	2,700	2,500
FL	10,500	10,500	10,300	40,000	39,000	39,000
GA	12,100	12,100	12,100	46,000	46,000	45,000
HI	1,710	1,710	1,710	4,600	4,500	4,400
ID	13,500	13,500	13,500	21,400	21,000	20,500
IL	28,500	28,400	28,300	82,000	81,000	80,000
IN	16,000	16,000	16,000	65,000	65,000	63,000
IA	33,500	33,400	33,300	102,000	102,000	100,000
KS	47,900	47,800	47,800	69,000	67,000	65,000
KY	14,100	14,100	14,100	91,000	91,000	91,000
LA	8,800	8,700	8,600	30,000	30,000	29,000
ME	1,420	1,420	1,420	7,100	7,100	7,100
MD	2,250	2,200	2,200	15,400	15,600	15,000
MA	680	680	650	6,900	6,900	6,600
MI	10,800	10,800	10,700	54,000	54,000	52,000
MN	30,000	29,800	29,700	88,000	88,000	87,000
MS	12,800	12,800	13,000	38,000	38,000	39,000
MO	30,400	30,300	30,200	107,000	107,000	106,000
MT	60,300	60,000	59,900	24,700	24,600	24,500
NE	47,100	47,100	47,100	56,000	56,000	55,000
NV	8,900	8,900	8,900	2,500	2,500	2,400
NH	480	470	470	2,900	2,900	2,700
NJ	880	880	870	8,300	8,500	8,400
NM	44,300	44,200	44,200	13,500	13,500	13,500
NY	8,300	8,200	8,200	38,000	38,000	38,000
NC	9,600	9,500	9,400	60,000	60,000	59,000
ND	40,400	40,400	40,400	33,000	33,000	33,000
OH	15,700	15,400	15,200	80,000	78,000	76,000
OK	33,000	34,000	34,000	70,000	71,000	71,000
OR	17,800	17,500	17,500	37,000	37,500	37,000
PA	8,100	8,000	7,900	53,000	52,000	51,000
RI	66	63	63	700	700	700
SC	5,200	5,200	5,150	24,500	24,500	24,300
SD	44,200	44,200	44,200	35,000	35,000	34,500
TN	12,400	12,600	12,400	87,000	88,000	86,000
TX	131,000	130,000	130,000	185,000	183,000	185,000
UT	11,300	11,300	11,200	13,300	13,200	13,000
VT	1,510	1,510	1,510	6,900	6,900	6,900
VA	8,800	8,700	8,600	45,000	44,000	43,000
WA	16,000	16,000	16,000	37,000	37,000	36,000
WV	3,700	3,700	3,700	20,000	20,000	20,000
WI	17,500	17,300	17,100	79,000	79,000	79,000
WY	34,800	34,800	34,800	9,000	9,200	9,300
US	982,766	979,963	978,153	2,105,060	2,093,840	2,068,240

¹A farm is an establishment that as of June 1 sold or would normally have sold \$1,000 or more of agricultural products during the year. ²Preliminary.

declined about 1-3 percent per year from 1983 through 1993; the overall decline for the period was 13.1 percent. This decline continues the downward trend started in 1936. Less than 2 percent of the U.S. population lives on a farm, and farm operators represent less than 1 percent of the total U.S. population.

Land in farms continues to decline slowly, with the total of 978 million acres in 1993, down 0.2 percent from a year earlier and down 4.4 percent from 1983. Land in farms has declined every year since reaching its peak at 1.206 billion acres in 1954.

Since the number of farms declined at a faster rate than land in farms, the average size of farms increased from 430 acres in 1983 to 473 acres in 1993.

■ Farms by Sales Class

Farms are commonly classified into size groups based on the total value of their gross farm sales. Data from the annual Farm Costs and Returns Survey, which is performed by ERS and the National Agricultural Statistics Service, show that the largest share of farms is in the lowest sales class, with nearly 60 percent reporting gross farm sales of less than \$20,000 in 1990 (fig. 12). These small farms account for only 15 percent of the acreage operated in the survey and 4 percent of the sales.

A relatively small number of very large farms produce the largest share of farm sales. Only 2 percent of the farms in 1990 were large operations with sales of \$500,000 or more, but they generated 36 percent of gross farm sales and operated 17 percent of the land.

Table 5.
**Percent of farms and land in farms: by economic sales class,
United States, June 1, 1992-93**

<i>Economic class (gross value of sales)</i>	<i>Percent of total</i>				<i>Average size of farms</i>	
	<i>Farms</i>		<i>Land</i>		1992	1993
	1992	1993	1992	1993		
\$1,000-\$2,499	21.3	21.1	2.8	2.7	62	61
\$2,500-\$4,999	14.1	14.3	3.1	3.0	103	99
\$5,000-\$9,999	12.6	12.8	4.0	4.0	149	148
\$10,000-\$19,999	10.8	11.4	5.8	5.8	251	253
\$20,000-\$39,999	11.2	10.6	10.0	10.0	418	424
\$40,000-\$99,999	14.5	13.4	22.0	22.0	710	716
\$100,000-\$249,999	10.3	10.8	25.6	25.6	1,163	1,143
\$250,000-\$499,999	3.2	3.4	12.8	12.8	1,872	1,850
\$500,000+	2.0	2.2	13.9	13.9	3,253	3,225
Total	100.0	100.0	100.0	100.0	468	473

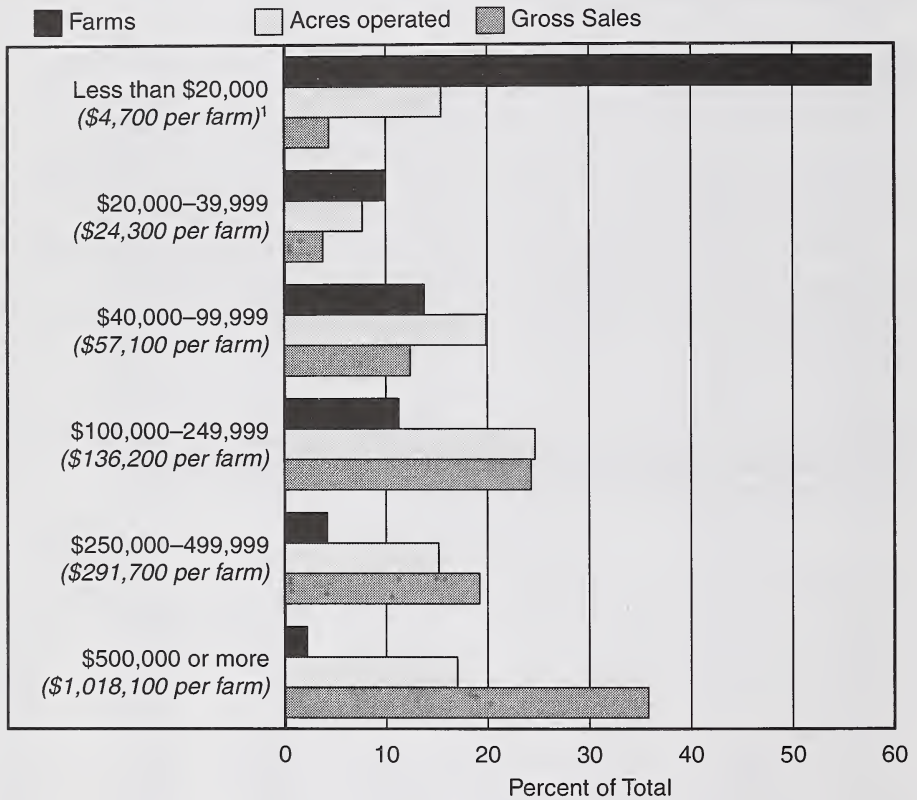
Source: U.S. Department of Agriculture, National Agricultural Statistics Service

Average acreage increases consistently with sales class, ranging from 155 acres per farm in the lowest sales class to 4,505 acres for farms with gross receipts of \$500,000 or more. The average farm in the \$500,000-or-more sales class reported farm sales of \$1.0 million in 1990, compared with sales of \$4,700 for the average farm in the lowest sales class.

Figure 12.

Farms, farmland, and gross farm sales, by sales class, 1990

The largest number of farms surveyed fall in the lowest sales class with less than \$20,000 of gross farm sales during the year



¹Numbers inside parentheses indicate average sales per reporting farm in the class.

Source: Farm Costs and Returns Survey, U.S. Department of Agriculture.

■ Types of Farm Organization

Type of organization refers to the farm's form of business organization. Farms may be broadly classified as individual or family operations, partnerships, or corporations. Farm Costs and Returns Survey data indicate that individual operations are the most common type of farm organization. Nine out of every 10 farms in the 1990 survey are classified as individual operations. Partnerships and corporations make up a very small share of farms. Individual operations, because of their large number, also account for the largest shares of farmland and gross farm sales.

Corporate farms have the highest average farm sales. The average value of gross farm sales by partnerships, at \$151,000, was only a third of the corporate value at \$465,000 in 1990; for individual operations, the average at \$46,000 was just a tenth of the corporate level. Average acreage is also highest for corporate farms at 3,515 acres in 1990, compared with 1,539 acres for partnerships, and 440 acres for individuals.

■ Land Tenure

Land tenure describes the farm operator's ownership interest in the land farmed. The major land tenure categories are (1) full owners, who own all of the land they operate; (2) part owners, who own some and rent the remainder of their land; and (3) tenants, who rent all of their land or work on shares for others. The majority of farms in the 1990 Farm Costs and Returns Survey (55 percent) reported full ownership of the land they operated, while 37 percent owned part and rented the remainder of their land. Only 9 percent of the operations reported that they rented all of their land.

Part owners generally operate the largest farms, averaging 905 acres in 1990, followed by tenants with 714 acres per farm and full owners with 353 acres per farm. Part owners also account for the largest share of the acreage operated (57 percent of the total in 1990).

Gross farm sales are also concentrated on part-owner operations (58 percent of the products sold in 1990). The average value of gross farm sales for part owners was about \$99,500, similar to the average for tenants at \$103,800. Average sales were lower on full-owner operations at \$32,200.

■ Foreign Ownership of U.S. Farmland

Foreign ownership of U.S. agricultural land remained relatively steady from 1981 through 1993—slightly above or below 1 percent of the privately owned agricultural land in the United States.

At the end of 1993, foreign persons owned 14.6 million acres—slightly more than 1 percent of the 1.3 billion acres of privately-owned U.S. agricultural land (farm and forest land).

Forest land accounts for 48 percent of all foreign-owned acreage, cropland for 17 percent, pasture and other agricultural land for 32 percent, and nonagricultural land for 3 percent.

Corporations own 71 percent of the foreign-held acreage, partnerships own 21 percent, and individuals own 6 percent. The remaining 2 percent is held by estates, trusts, institutions, associations, and others.

About 53 percent of the reported foreign holdings involve land actually owned by U.S. corporations. The law requires them to register their landholdings as foreign if as little as 10 percent of their stock is held by foreign investors. The remaining 47 percent of the foreign-held land is owned by investors not affiliated with U.S. firms.

A total of 72 percent of foreign-held acreage is owned by investors (including individuals, corporations, partnerships, etc.) from Canada, the United Kingdom, Germany, France, Switzerland, and the Netherlands and Netherlands Antilles (in descending rank order). Japanese investors own only 3 percent of foreign-owned acreage.

Maine is the state with the largest number of acres (2,425,136) owned by foreign persons. Foreign holdings in Maine account for 13 percent of that State's privately owned agricultural land and 17 percent of all the reported foreign-owned agricultural land nationwide. Four companies own 88 percent of the foreign-held acres in Maine, all in forest land. Two of these companies are Canadian, the third is a U.S. corporation that is partially Canadian owned, and the fourth is a U.S. corporation that is partially French owned.

Table 6.

**U.S. agricultural landholdings of foreign owners, by State,
December 31, 1993**

<i>State</i>	<i>Foreign-owned agricultural land</i>	<i>State</i>	<i>Foreign-owned agricultural land</i>	<i>State</i>	<i>Foreign-owned agricultural land</i>
	<i>Acres</i>		<i>Acres</i>		<i>Acres</i>
Alabama	447,859	Louisiana	686,203	Oklahoma	58,422
Alaska	75	Maine	2,425,136	Oregon	736,289
Arizona	336,076	Maryland	51,276	Pennsylvania	59,318
Arkansas	188,850	Massachusetts	1,988	Puerto Rico	839
California	920,754	Michigan	205,830	R. Island	0
Colorado	642,682	Minnesota	216,646	S. Carolina	194,190
Connecticut	881	Mississippi	501,300	S. Dakota	42,666
Delaware	5,870	Missouri	76,060	Tennessee	174,591
Florida	620,835	Montana	563,562	Texas	1,185,931
Georgia	577,386	Nebraska	77,101	Utah	55,118
Guam	0	Nevada	285,773	Vermont	121,057
Hawaii	179,960	N. Hampshire	149,605	Virginia	112,032
Idaho	22,375	New Jersey	18,572	Washington	386,889
Illinois	193,304	New Mexico	783,872	W. Virginia	111,138
Indiana	81,718	New York	273,843	Wisconsin	26,944
Iowa	31,792	N. Carolina	227,206	Wyoming	178,728
Kansas	76,202	North Dakota	29,468		
Kentucky	96,501	Ohio	198,747	Total	14,645,460

Outside of Maine, foreign holdings are concentrated in the West (35 percent) and South (34 percent). Rhode Island is the only State with no reported foreign-owned agricultural land.

These findings are based on reports submitted to USDA under the Agricultural Foreign Investment Disclosure Act of 1978.

Table 7.

**U.S. agricultural landholdings by country of foreign owner,
December 31, 1993**

Interests excluding U.S. corporations with foreign shareholders

<i>Country</i>	<i>Acres</i>	<i>Country</i>	<i>Acres</i>
	<i>Number</i>		<i>Number</i>
Argentina	13,394	Hong Kong	14,763
Australia	5,431	Hungary	103
Austria	56,610	India	1,708
Bahamas	34,692	Indonesia	752
Bahrain	313	Iran	2,343
Barbados	117	Ireland	10,508
Belgium	65,526	Israel	951
Belize	549	Italy	83,250
Bermuda	73,444	Ivory Coast	119
Bolivia	11	Jamaica	1,631
Brazil	8,962	Japan	199,915
British Virgin Islands	125,961	Jordan	1,580
Canada	1,643,527	Kampuchea	31
Cayman Islands	36,424	Korea (South)	1,570
Chile	2,074	Kuwait	20,188
China	496	Laos	31
Colombia	11,414	Lebanon	12,663
Costa Rica	13,835	Liberia	29,632
Croatia	1,023	Liechtenstein	133,947
Cuba	20	Luxembourg	4,005
Czech Republic	350	Malaysia	7,948
Denmark	13,283	Mexico	178,235
Dominican Republic	2,128	Morocco	1,035
Ecuador	976	Namibia	197
Egypt	2,134	Netherlands	116,611
El Salvador	128	Netherlands Antilles	369,202
Finland	22	New Zealand	13,587
France	132,120	Nicaragua	1,378
Gambia	294	Norway	5,713
Germany	749,818	Oman	454
Greece	60,491	Pakistan	968
Guatemala	1,102	Panama	165,182
Guyana	35	Peru	308
Honduras	1,018	Philippines	3,680

Table 7 continued.

**U.S. agricultural landholdings by country of foreign owner,
December 31, 1993**

<i>Country</i>	<i>Acres</i>	<i>Country</i>	<i>Acres</i>
	<i>Number</i>		<i>Number</i>
Poland	147	Thailand	1,835
Portugal	3,996	Trinidad & Tobago	94
Russia	761	Turkey	38
St. Vincent	2,637	Turks Island	3,192
Saudi Arabia	30,498	United Arab Emrates	3,930
Singapore	504	United Kingdom	1,821,310
Somalia	11	Uruguay	10,807
South Africa	2,473	Venezuela	22,279
Spain	3,890	Vietnam	152
Sweden	54,549	Zimbabwe	230
Switzerland	287,383		
Syria	2,689	Multiple ¹	56,285
Taiwan	7,949	Third tier ²	66,317
Tanzania	10,143		
		Subtotal ³	6,836,009

U.S. corporations with foreign shareholders

<i>Country</i>	<i>Acres</i>	<i>Country</i>	<i>Acres</i>
	<i>Number</i>		<i>Number</i>
US/Andorra	3,741	US/Guyana	334
US/Argentina	4,507	US/Honduras	37
US/Australia	2,408	US/Hong Kong	131,139
US/Austria	21,272	US/Indonesia	544
US/Bahamas	61,354	US/Iran	1,861
US/Barbados	41	US/Iraq	800
US/Belgium	89,031	US/Ireland	4,655
US/Bermuda	38,986	US/Israel	414
US/Brazil	14,400	US/Italy	22,504
US/Brit. Virgin Islands	133,340	US/Japan	281,770
US/Canada	1,688,757	US/Jordan	434
US/Cayman Islands	11,969	US/Kenya	32
US/Chile	9,929	US/Korea (South)	85
US/China	15,589	US/Kuwait	8,330
US/Colombia	10,154	US/Lebanon	703
US/Costa Rica	407	US/Liberia	26,733
US/Denmark	6,998	US/Libyan Arab Republic	280
US/Ecuador	1,632	US/Liechtenstein	98,841
US/Egypt	959	US/Luxembourg	233,655
US/El Salvador	607	US/Malaysia	300
US/Finland	2,282	US/Mexico	249,783
US/France	947,878	US/Netherlands	369,802
US/Germany	744,734	US/Netherlands Antilles	220,550
US/Greece	5,249	US/New Hebrides	2,991
US/Guatemala	412	US/New Zealand	50,455

Table 7 continued.

**U.S. agricultural landholdings by country of foreign owner,
December 31, 1993**

<i>Country</i>	<i>Acres</i>	<i>Country</i>	<i>Acres</i>
	<i>Number</i>		<i>Number</i>
US/Nicaragua	282	US/Taiwan	17,528
US/Norway	9,709	US/Thailand	252
US/Panama	151,969	US/Trinidad & Tobago	20
US/Paraguay	236	US/Turkey	443
US/Peru	1,696	US/United Arab Emirates	3,223
US/Philippines	7,793	US/United Kingdom	1,134,074
US/Portugal	1,683	US/Uruguay	618
US/Qatar	219	US/Venezuela	40,269
US/Saudi Arabia	10,648		
US/South Africa	2,573	US/Multiple	177,399
US/Spain	4,574	US/Third Tier	386,861
US/Sweden	7,185		
US/Switzerland	326,529	Subtotal ⁴	7,809,451
		Total all landholdings	14,645,460

¹A report is processed as "multiple" when no single country predominates—for example, an equal partnership between a Canadian and a German.

²A report is processed as "third tier" if three or more levels of ownership are reported with no foreign interests stated.

³Total interests excluding U.S. corporations with foreign shareholders.

⁴Total interest of U.S. corporations with foreign shareholders.

3. The U.S. Farm Sector

■ Farm Labor

Labor use on U.S. farms has changed dramatically over the last several decades. Average annual farm employment dropped from 9.9 million in 1950 to 3.1 million in 1992. This decrease resulted largely from the trend toward fewer and larger farms, increased farm mechanization and other technological innovations, and higher off-farm wages. However, farm employment appears to have stabilized in recent years as increases in mechanization and laborsaving technology have leveled off and the downward trend in farm numbers has slowed.

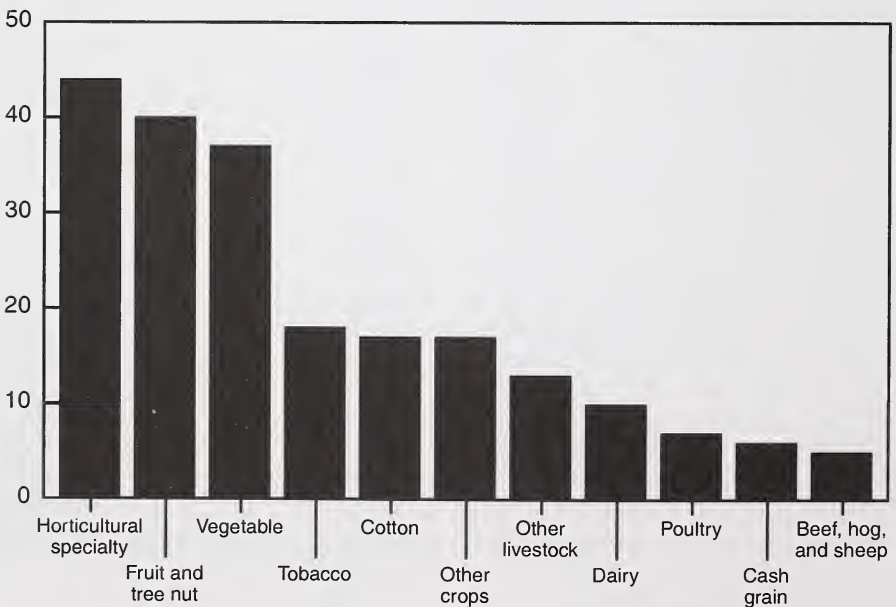
Family workers, including farm operators and unpaid workers, accounted for 64 percent of farm labor in 1992, while hired workers accounted for 28 percent. A recent change in farm labor use patterns has been the increased use of service workers, including crew leaders and custom crews, who accounted for 8 percent of all workers on farms in 1992 compared to less than 2 percent in 1980.

The average wage rate for hired farm workers in the United States in 1992 was \$6.06 per hour. Wages varied by type of worker: livestock workers averaged \$5.55, field workers averaged \$5.69, and supervisors averaged \$9.58 in 1992.

Figure 13.

Labor's share of total farm production expenses, 1987

Percent



A significant portion of total farm production expenses is spent on labor. The 1987 Census of Agriculture reported that expenditures for hired and contract labor on U.S. farms were \$12.7 billion in 1987, or almost 12 percent of total farm production expenses. About 39 percent of all farms had hired labor expenses and 13 percent had contract labor expenses.

The importance of labor varied significantly by farm type and size of farm. The proportion of total farm production expenses attributed to hired and contract labor expenses was greatest on horticultural specialty farms (44 percent), fruit and tree nut farms (40 percent), and vegetable and melon farms (37 percent). These types of farms are the least mechanized, and many of the commodities they produce are still harvested by hand. At the other extreme, labor expenses comprised less than 8 percent of all production expenses on beef cattle, hogs, sheep, poultry, and cash grain farms.

Larger farms are more likely to have labor needs in excess of that provided by the farm family. Farms of 260 or more acres, which accounted for only 31 percent of all farms, had 69 percent of all labor expenses in 1987. In terms of sales class, the 25 percent of all farms with \$50,000 or more in value of products sold accounted for 93 percent of all labor expenses.

■ **Agricultural Credit**

The availability and use of credit plays a significant role in the sustained profitability of farm enterprises. In this regard, a symbiotic relationship exists between agricultural producers and their lenders; the health of one depends on the condition of the other. As farmers enjoyed relative prosperity in 1992, the major institutional lenders serving agriculture experienced continuing improvement in their financial condition, and further gains were seen in 1993. Commercial banks, the Farm Credit System (FCS), and Life Insurance Companies continue to report a decline in loan delinquencies, foreclosures, net loan charge-offs, and restructurings. Total farm business debt at the end of 1992 was \$138.6 billion, down slightly from 1991.

Lenders generally reported that agricultural credit demand was up only slightly in 1992, while credit availability remained adequate. However, while lenders are actively seeking new borrowers, their perception of a tighter regulatory environment appears to be leading them to exercise greater caution in granting loan approval. Lenders report adequate loan funds for all creditworthy borrowers, but they are applying stricter eligibility requirements in qualifying all loan applicants, including farmers. At the same time, farmers do not appear anxious to use their improved incomes to leverage a new round of credit-financed expansion.

Loans made to agricultural producers are generally classified as real estate and non-real-estate loans. Real estate loans generally have terms of from 10 to 40 years, and are ordinarily used to purchase farmland or to make major capital improvements to farm property. Much of the growth of commercial bank real estate loans during the 1980's was due to the use of farm real estate as security for refinancing of production and intermediate-term loans. Farm real estate debt, excluding debt attributed to operator dwellings, was \$75 billion at the end of 1992, up slightly from 1991. Non-real-estate loans are typically made for loan terms of less than 10 years, with term

depending on the purpose of the loan: Seasonal operating loans are made for less than 1 year, while loans to purchase machinery and equipment or livestock may run for 7 years or more. Farm business non-real-estate debt was \$63.6 billion at the end of 1992, down slightly from 1991.

At the end of 1992, the FCS held \$25.3 billion in farm business real estate mortgage debt, and \$10.3 billion of non-real-estate loans. In total, the FCS held about 25 percent of all farm business debt. The financial health of the FCS continued to improve in 1992. The FCS had net income of \$986 million on total net interest income of \$1.2 billion during 1992. Furthermore, in recent years the System's overall loan portfolio has improved as the average cost of funds continued to decline, increasing the spread between interest earned on loans outstanding and interest paid on bonds issued from 1.24 percent in 1990 to 2.34 percent during 1992. This translated into a more competitive loan pricing environment for the FCS as a whole.

Commercial banks held more than 37 percent of all farm business debt by the end of 1992, accounting for \$18.7 billion in real estate loans (25 percent of total) and \$32.9 billion in non-real-estate debt (52 percent). Loan-to-deposit ratios at agricultural banks indicate ample available credit. Life insurance companies continue to reduce their presence in the agricultural credit market, as their total farm business debt fell to \$8.7 billion, giving them an 11-percent share of the farm business mortgage market. The "Individuals and others" classification is composed primarily of sellers financing the sale of farmland in real estate lending, and input suppliers and relatively minor lending agencies in the non-real-estate debt category. These accounted for \$16 billion in real estate loans and \$13.2 billion in non-real-estate debt at the end of 1992.

Table 8.

Farm business debt, selected years

	Farm debt outstanding, December 31										
	1950	1960	1970	1980	1983	1986	1988	1989	1990	1991	1992
Real estate debt:	\$ Billion										
Farm Credit System	0.8	2.2	6.4	33.2	44.3	35.6	28.4	26.7	25.7	25.2	25.3
Life insurance companies	1.1	2.7	5.1	12.0	11.7	10.4	9.0	9.0	9.6	9.5	8.7
Banks	0.8	1.4	3.3	7.8	8.3	11.9	14.4	15.6	16.2	17.3	18.7
Farmers Home Administration	0.2	0.6	2.2	7.4	8.6	9.7	9.0	8.1	7.6	7.0	6.4
Individuals and others	2.1	4.5	10.5	29.3	30.3	22.8	16.9	15.9	15.0	15.5	16.0
Total	5.2	11.3	27.5	89.7	103.2	90.4	77.6	75.4	74.1	74.5	75.0
Non-real-estate debt:											
Banks	2.4	4.7	10.5	30.0	37.1	29.7	28.3	29.2	31.3	32.9	32.9
Farm Credit System	0.5	1.5	5.3	19.8	19.4	10.3	8.8	9.5	9.8	10.2	10.3
Farmers Home Administration	0.3	0.4	0.7	10.0	12.9	14.4	12.9	10.8	9.4	8.2	7.1
Individuals and others	2.5	4.5	4.8	17.4	18.6	12.1	11.8	12.2	12.7	13.0	13.2
Total	5.7	11.1	21.3	77.1	87.9	66.6	61.7	61.9	63.2	64.3	63.6
Total	10.9	22.4	48.8	166.8	191.1	157.0	139.4	137.2	137.4	138.8	138.6

■ The Balance Sheet

Farm business asset values totaled \$861.5 billion on December 31, 1992, an increase of 2 percent from the preceding year. Farm business debt remained fairly constant during 1992, totaling \$138.6 billion at year's end. Increases in assets and a constant debt in 1992 resulted in a 3-percent increase in equity. Average equity per farm on December 31, 1992, was \$345,000.

The debt-to-asset ratio (expressed as a percentage) decreased during 1992 from 16.5 to 16.1 percent. The ratio was down sharply from the peak of 23 percent in 1985.

Real estate assets accounted for 73 percent of the total asset value in 1992. Real estate assets increased 1.6 percent during 1992. At the end of 1992, the average farm business real estate value per farm was \$302,500.

Non-real-estate assets increased 4 percent during 1992. Increases in value occurred for livestock and poultry, crops, purchased inputs, and financial assets. The value of machinery and equipment remained constant in 1992.

Farm business real estate debt increased slightly in 1992 to \$75 billion, while non-real-estate debt declined slightly. On December 31, 1992, commercial banks held 37 percent of the farm business debt, followed by the Farm Credit System at 26 percent.

Table 9.

Farm business assets, debt, and equity¹

Item	1960	1970	1980	1990	1992
	<i>Billion dollars</i>				
Assets	174.2	278.7	983.2	848.3	861.5
Real estate	123.3	202.4	782.8	628.2	633.1
Nonreal estate ²	50.9	76.3	200.4	200.1	228.4
Debt	22.4	48.8	166.8	137.4	138.6
Real estate ³	11.3	27.5	89.8	74.1	75.0
Nonreal estate ⁴	11.1	21.2	77.1	63.2	63.6
Equity (assets minus debt)	151.7	229.9	816.4	710.9	722.9

¹As of December 31. ²Crop inventory value is value of non-CCC crops held on farms plus value above loan rate for crops held under CCC. ³Includes CCC storage and drying facilities loans. ⁴Excludes value of CCC crop loans.

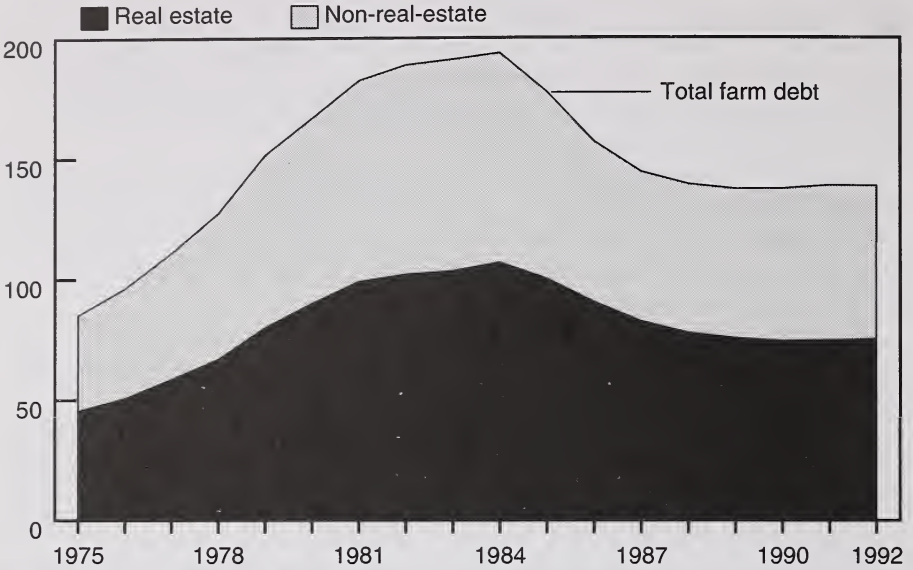
■ How does the U.S. food and fiber system relate to the overall U.S. economy?

Employment in the U.S. food and fiber system totaled 22.8 million jobs in 1992. This represented 18 percent of the 127 million civilian jobs in the entire U.S. economy that year. In addition to farm production jobs, employment in the food and fiber system includes jobs in agribusiness, agricultural processing and marketing, wholesale and retail trade of agricultural products, and input industries.

The demand for food and fiber products in 1992 generated \$950.2 billion in gross domestic product. This represented 15.7 percent of the \$6 trillion U.S. gross domestic product (GDP) that year.

Figure 14.

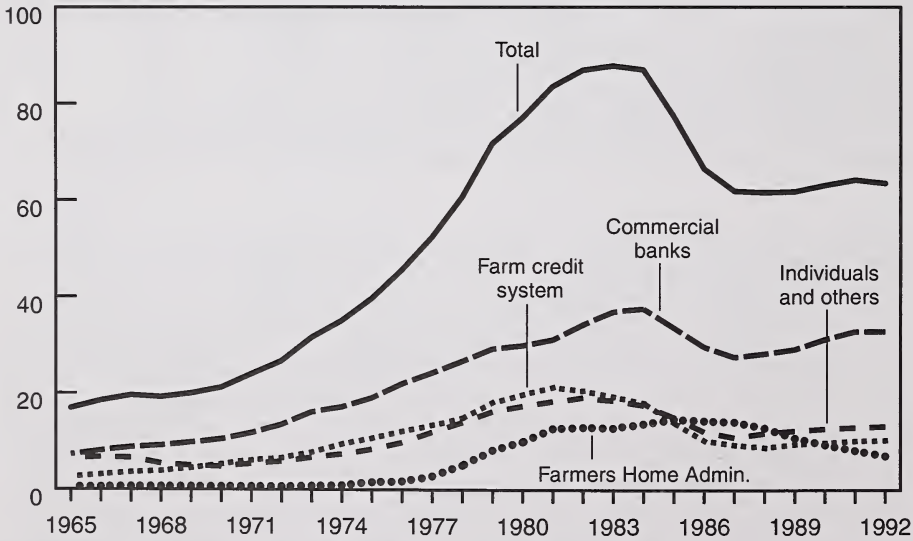
Farm debt



Farm loans outstanding December 31, 1992

Figure 15.

Non-real-estate debt



Individuals and others include Commodity Credit Corporation real estate loans.

■ Net Farm Income

Net cash farm income rose 8.2 percent in 1992 to \$57.7 billion. Gross cash income increased by \$3.2 billion, while cash expenses fell \$1.2 billion. The rise in cash income was due to higher receipts for dairy products and wheat, and to a rise in direct Government payments. The drop in cash expenses was largely attributable to lower expenses for purchased livestock and poultry and lower interest rates. Adequate rain and the absence of excessively high temperatures in 1992 led to record production and yields of several field crops. Wheat receipts increased by \$1.3 billion due to increased production and higher prices. Cash receipts of dairy increased \$1.8 billion, largely as the result of higher milk prices. Government payments rose \$1.0 billion because disaster payments for the 1990 and 1991 crop losses were made in the spring of 1992. Expenses for purchased livestock declined as the result of lower prices for cattle and hogs.

Net cash income measures the farm sector's cash income generated from farming businesses during a calendar year. Farm businesses use the net cash income from farming to purchase farm assets, reduce farm debt, meet living expenses, and save for the future. Net cash income is the sum of farm marketings, Government payments, and farm-related income minus cash expenses. Cash expenses include purchased feed, seed, livestock, fertilizer, lime, pesticides, fuel, oil, and electricity. Cash expenses for interest, property taxes, labor, and net rent to nonoperator landlords are also included.

Net farm income rose 21.5 percent in 1992 to \$48.6 billion. Gross farm income increased by \$7.4 billion while total production expenses fell by \$1.2 billion. The increase in gross farm income is attributable to favorable weather which led to higher crop production. Higher crop production increased the value of crop cash receipts and inventory adjustment. Record yields of corn combined with lower corn prices caused farm businesses to increase inventories of corn in 1992 after having drawn down their corn inventories in 1991. This change caused most of the \$4.1 billion increase in the value of inventory adjustment. The rise in inventory adjustment along with the \$3.2 billion increase in gross cash income accounted for the majority of the increase in net farm income.

Net farm income measures the net value of agricultural commodities and services produced by the farm sector during a calendar year. It includes the income and expenses related to farmers' onfarm dwellings. The farm sector consists of sole proprietors, multifamily farms, partnerships, contractors, and vertically integrated corporations that are involved in farming. Gross farm income is computed by summing the gross cash income from farming, nonfarm income, and the value of inventory adjustment. Total production expenses are the sum of intermediate product expenses, interest, labor, net rent to nonoperator landlords, capital consumption, and property taxes. Net farm income is the residual.

Table 10.

Net cash income and net farm income, 1991-92

<i>Item</i>	<i>Current dollars</i>		<i>1987 dollars¹</i>	
	<i>1991</i>	<i>1992</i>	<i>1991</i>	<i>1992</i>
	<i>Billion dollars</i>			
Gross cash income	184.7	187.9	157.0	155.2
Farm marketings	168.7	171.2	143.5	141.4
Government payments	8.2	9.2	7.0	7.6
Farm-related income	7.8	7.6	6.6	6.2
Cash expenses	131.4	130.2	111.7	107.6
Intermediate product expenses	91.0	89.7	77.4	74.1
Interest	11.5	10.8	9.8	9.0
Cash labor expenses	13.4	13.5	11.4	11.2
Net rent to nonoperator landlords	10.5	10.9	8.9	9.0
Property taxes	5.0	5.2	4.3	4.3
Net Cash Income	53.3	57.7	45.3	47.7
Gross farm income	190.3	197.7	161.8	163.4
Gross cash income	184.7	187.9	157.0	155.2
Noncash income	5.9	6.1	5.0	5.0
Value of home consumption	0.6	0.6	0.5	0.5
Rental value of dwellings	5.3	5.5	4.5	4.5
Value of inventory adjustment	-0.3	3.8	-0.2	3.1
Total production expenses	150.3	149.1	127.8	123.2
Intermediate product expenses	91.9	90.4	78.2	74.7
Farm origin	38.7	38.5	32.9	31.8
Feed purchased	19.3	19.8	16.4	16.4
Livestock and poultry purchased	14.3	13.8	12.1	11.4
Seed purchased	5.1	4.9	4.4	4.1
Manufactured inputs	23.2	22.7	19.7	18.8
Fertilizer and lime	8.7	8.3	7.4	6.9
Pesticides	6.3	6.5	5.4	5.4
Fuel and oil	5.6	5.3	4.8	4.4
Electricity	2.6	2.6	2.2	2.2
Other	30.0	29.2	25.5	24.1
Interest	12.1	11.4	10.3	9.4
Labor expenses	13.9	14.1	11.8	11.6
Net rent to nonoperator landlords	9.1	9.6	7.7	7.9
Capital consumption	17.6	17.8	15.0	14.7
Property taxes	5.6	5.8	4.8	4.8
Net Farm Income	40.0	48.6	34.0	40.2

¹Gross Domestic Product implicit price deflators are used to deflate accounts to real dollars.

■ Farm Household Income

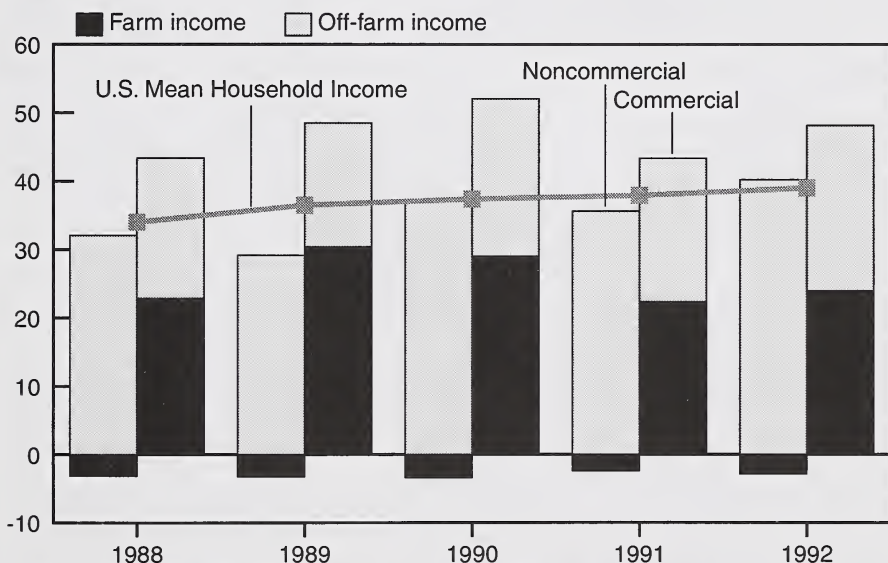
Senior farm operators have been surveyed by the annual Farm Costs and Returns Survey about the finances and production of their farms since 1985. Beginning in 1988 USDA has collected additional information about the operator's household. Over 98 percent of farms are covered in the household definition. Included are those run by legal proprietorships, partnerships, or family corporations. Nonfamily corporations, cooperatives, and institutional farms are not included in the household definition.

Like many other U.S. households, farm operator households receive income from a variety of sources, one of which is farming. The 1992 average household income for farm operator households was \$40,068, which is on par with the average U.S. household. About 11 percent of total household income was from farming. Approximately 90 percent of all farm operator households received some income from off-farm sources and many operators spent the majority of their work effort in off-farm occupations. Off-farm income includes earned income such as wages and salaries from an off-farm job and net income from a nonfarm business, and unearned income such as interest and dividends, and royalties, annuities, Social Security, Medicare, and other nonfarm sources.

Figure 16.

Average farm and off-farm income for households running commercial and noncommercial size farms, 1988-92

Income (\$1,000)



Note: Commercial farms are defined as farms having gross sales of agricultural products of \$50,000 or more. Noncommercial farms have gross sales of less than \$50,000. On average, noncommercial farms had higher farm costs than returns, resulting in negative farm income each year 1982-92.

Source: 1988-1992 Farm costs and Returns Survey; Commerce Department, Money Income of Households, Families, and Persons in the United States: various years.

Table 11.

Farm operator households' aggregate farm business and household income, 1988-92

Item	Year				
	1988	1989	1990	1991	1992
	<i>Number</i>				
Farms ¹	2,184,433	2,148,740	2,116,470	2,099,900	2,090,700
Farm operator households ²	2,160,433	2,125,741	2,100,541	2,080,132	2,071,948
Self-employment income from farming:	<i>Billion dollars</i>				
Gross cash farm income	110.9	117.6	119.9	122.5	117.8
Cash receipts	94.4	101.7	105.7	108.4	102.4
Direct government payments	9.7	7.6	6.0	6.2	6.2
Other farm-related income	6.8	8.4	8.2	7.9	9.2
less: Cash expenses	92.9	96.5	99.4	103.7	99.5
equals: Net cash farm income	18.0	21.1	20.5	18.8	18.3
less: Depreciation ³	10.3	11.9	10.2	10.5	10.7
less: Operator wages, rent	1.8	1.9	1.5	1.6	1.2
equals: Self-employment farm business income	5.9	7.3	8.8	6.7	6.5
Household share of self-employment farm business income ⁴	4.1	5.4	6.8	4.7	4.7
plus: Operator wages, rent	1.8	1.9	1.5	1.6	1.2
equals: Share of self-employment income from farming	5.9	7.3	8.2	6.3	5.9
Farm operator household income:					
Farm income of household	6.6	9.5	9.7	9.1	9.0
Household share of income from farming ⁴	5.9	7.3	8.2	6.3	5.9
Other farm income to household ⁵	0.7	2.2	1.5	2.8	3.1
plus: Total off-farm income	62.8	56.0	70.6	65.8	74.0
Wages, salaries and nonfarm businesses income	48.5	41.6	52.6	49.0	56.0
Percent reporting	61.8	60.8	66.9	63.7	65.9
Interest, dividends, transfer payments, etc.	14.3	14.5	18.0	16.8	18.0
Percent reporting	63.3	61.3	64.4	65.9	68.3
equals: Farm operator household income	69.4	65.5	80.3	75.0	83.0
	<i>Dollars</i>				
Average farm income to household	3,057	4,451	4,626	4,397	4,337
Average off-farm income	29,074	26,362	33,611	31,638	35,731
Average household income	32,131	30,813	38,237	36,035	40,068
Distribution of income per household:	<i>Percent</i>				
Less than \$15,000	39.5	37.7	31.0	33.7	28.8
\$15,000-\$37,999	36.3	37.2	37.0	36.1	37.1
\$38,000 and over	24.2	25.1	32.0	30.2	34.1

¹Number of farms is all farms regardless of legal organization. Includes proprietorships, partnerships, family corporations, nonfamily corporations and cooperatives.

²Number of households is a subset of farms and includes those households operating closely-held farms organized as proprietorships, partnerships, and family corporations. The household definition excludes farms organized as nonfamily corporations, cooperatives, or farms whose hired manager does not receive any of the net income.

³Consistent with Census Bureau's definition of self-employment income, depreciation expenses are subtracted from net income before the allocation to the household.

⁴Household share of farm business income is calculated at the farm level by multiplying the self-employment farm business income by the share the household receives. Approximately 6 percent of households share farm income with at least one other household. Household shares are summed for the aggregate level of self-employment farm income to the household.

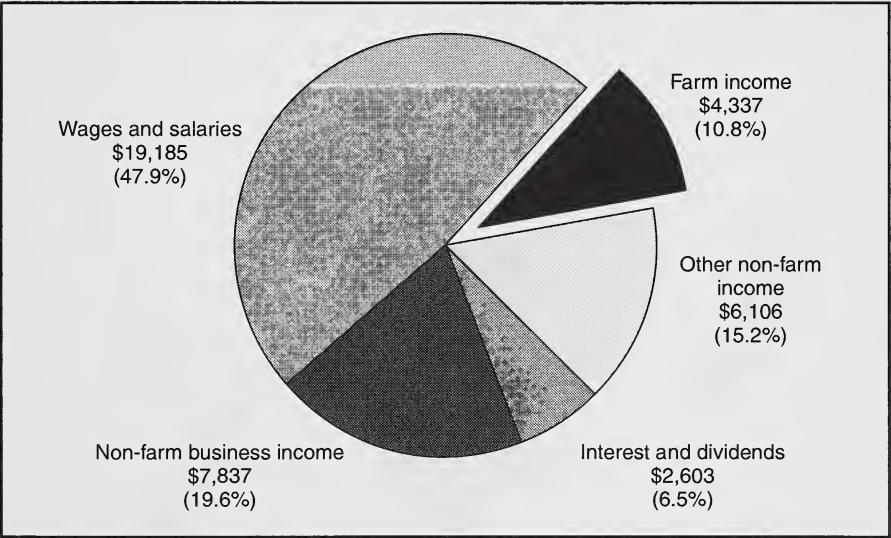
⁵Other farm income to the household includes amounts that family members are paid to work on the farm and net income from a farm business other than the one being surveyed.

Even though on average farm operator households compare well with the average U.S. household, a substantially larger percentage of farm operator households than all U.S. households were in the lower income categories. Because farming is a highly capitalized form of business, the average net worth of operators' households (including the farm business) was significantly higher than for all U.S. households.

For the majority of farm operator households, off-farm income is critical. Most U.S. farms are small (less than \$50,000 in gross sales) and are run by households which depend mainly on off-farm sources of income. Similarly, persons with non-farm self-employment income are not always completely dependent on their self-employment earnings either. The larger the farm, the more likely the operator is to have a major occupation of farming, and the more likely the household will more fully depend on farm income. In 1992, about a quarter of farm households operated commercial-size farms with sales over \$50,000 and a full-time operator. These farms provide most of the U.S. farm production. But even in households with the largest farms (sales over \$500,000), off-farm income accounts for almost one-third of their household income.

Figure 17.

Sources of income for average farm operator household



Source: 1992 farm costs and returns survey, all versions

■ Net Farm Income by State

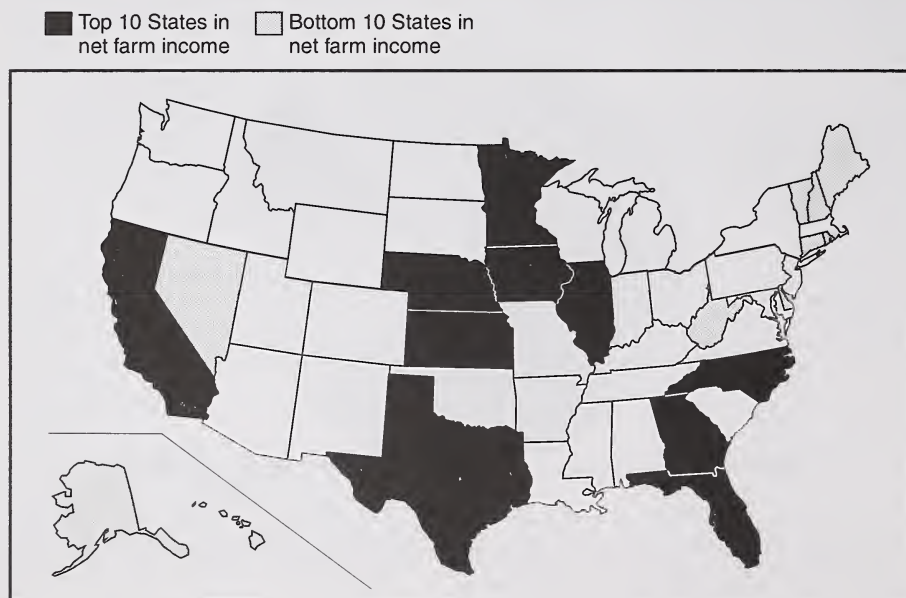
The ranking of States by the aggregate value of net farm income reflects the size of the State, the proportion of its land that can be cultivated, the fertility of the land and climate within the State, and the State's comparative advantage in producing and marketing high-value commodities. Because these factors do not readily change, the ranking of States remains relatively stable over a period of years.

California led the Nation in 1992 with a net farm income of \$4.8 billion, followed by Texas with \$3.5 billion, Florida with \$2.8 billion, Nebraska with \$2.7 billion, and Iowa with \$2.5 billion.

California, at \$18.2 billion, also led the Nation in cash receipts from all commodities. The State's top five commodities in sales—dairy products, greenhouse and nursery products, grapes, cattle, and cotton—accounted for 47 percent of its cash receipts. California was the top producing State for six commodities: greenhouse and nursery products, cotton, eggs, hay, grapes, and lettuce. California also had the highest production expenses, \$14.8 billion.

Figure 18.

Net farm income, 1992



Source: Economic Research Service

The second leading State in net farm income, Texas, ranked second in cash receipts, with \$11.6 billion in sales. It was first in livestock receipts (\$7.5 billion) and fifth in crop receipts (\$4.1 billion). Texas was also the leading producer of cattle and calves and grain sorghum. Texas ranked second in production expenses.

The third ranking State in net farm income, Florida, ranked eighth in gross farm income but ranked fifteenth in production expenses. Florida's top commodities include oranges, greenhouse and nursery products, and tomatoes.

Nebraska ranked fourth in net farm income and fourth in gross farm income. In production expenses Nebraska ranked fifth. Nebraska's top three commodities are cattle and calves, corn, and hogs.

Iowa was the fifth leading agricultural State. Iowa ranked third in gross farm income and in production expenses. It ranked third in cash receipts with \$10.3 billion, third in livestock sales, and fourth in crop sales. Iowa was the leading producer of hogs.

■ State Rankings by Cash Receipts

A ranking by cash receipts of leading commodities within States can convey a significant amount of information about the product mix within a State (see table 12). Similarly, a ranking of States by cash receipts from sales of a specific commodity or commodity group can convey information about the relative importance of the commodity to individual States and geographic regions. Such rankings are an aid in analyzing the effects of weather, changes in farm programs, or economic conditions affecting the prices of commodities.

Table 12.

States ranked by cash receipts, 19921

State	Total			Livestock and products			Crops			State's top ranking commodities by value of cash receipts				
	Cash			Cash			Cash			1	2	3	4	5
	Rank	receipts	Rank	Rank	receipts	Rank	Rank	receipts	Rank					
Alabama	25	2,830	16	16	2,063	33	33	768	768	Broilers	Cattle/calves	Gmhs/nurs	Peanuts	Cotton
Alaska	50	25	50	50	6	50	50	20	20	Gmhs/nurs	Dairy prods	Potatoes	Hay	Cattle/calves
Arizona	32	1,835	31	31	892	30	30	943	943	Cattle/calves	Cotton	Dairy prods	Hay	Gmhs/nurs
Arkansas	11	4,602	10	10	2,702	16	16	1,901	1,901	Broilers	Soybeans	Rice	Cotton	Cattle/calves
California	1	18,234	4	4	5,055	1	1	13,179	13,179	Dairy prods	Gmhs/nurs	Grapes	Cattle/calves	Cotton
Colorado	17	4,038	8	8	2,955	26	26	1,083	1,083	Cattle/calves	Corn	Wheat	Dairy prods	Hay
Connecticut	44	489	43	43	240	40	40	249	249	Gmhs/nurs	Dairy prods	Eggs	Tobacco	Cattle/calves
Delaware	40	636	39	39	451	42	42	184	184	Broilers	Soybeans	Corn	Gmhs/nurs	Dairy prods
Florida	8	6,145	27	27	1,160	3	3	4,985	4,985	Oranges	Gmhs/nurs	Tomatoes	Cane/sugar	Dairy prods
Georgia	16	4,073	13	13	2,309	17	17	1,764	1,764	Broilers	Peanuts	Cattle/calves	Eggs	Dairy prods
Hawaii	41	564	47	47	88	37	37	476	476	Cane/sugar	Pineapples	Gmhs/nurs	Macad nuts	Dairy prods
Idaho	26	2,816	26	26	1,173	19	19	1,643	1,643	Cattle/calves	Potatoes	Dairy prods	Wheat	Sugarbeets
Illinois	5	7,634	14	14	2,202	2	2	5,431	5,431	Corn	Soybeans	Hogs	Cattle/calves	Dairy prods
Indiana	12	4,505	19	19	1,821	9	9	2,684	2,684	Corn	Soybeans	Hogs	Cattle/calves	Dairy prods
Iowa	3	10,330	3	3	5,614	4	4	4,716	4,716	Hogs	Corn	Cattle/calves	Soybeans	Dairy prods
Kansas	7	7,000	5	5	4,558	11	11	2,442	2,442	Cattle/calves	Wheat	Corn	Sorghum grain	Soybeans
Kentucky	22	3,221	20	20	1,641	20	20	1,580	1,580	Tobacco	Cattle/calves	Horses/mules	Dairy prods	Corn
Louisiana	31	1,846	36	36	587	22	22	1,259	1,259	Cotton	Cane/sugar	Soybeans	Rice	Cattle/calves
Maine	42	513	41	41	301	41	41	213	213	Potatoes	Dairy prods	Eggs	Aquaculture	Blueberries
Maryland	35	1,391	32	32	804	35	35	587	587	Broilers	Gmhs/nurs	Dairy prods	Soybeans	Corn
Massachusetts	43	491	46	46	135	39	39	356	356	Gmhs/nurs	Cranberries	Dairy prods	Eggs	Apples
Michigan	20	3,286	25	25	1,325	14	14	1,962	1,962	Dairy prods	Corn	Gmhs/nurs	Cattle/calves	Soybeans
Minnesota	6	7,082	7	7	3,622	6	6	3,460	3,460	Dairy prods	Corn	Soybeans	Cattle/calves	Hogs
Mississippi	27	2,602	23	23	1,355	23	23	1,247	1,247	Cotton	Broilers	Soybeans	Cattle/calves	Aquaculture
Missouri	15	4,123	15	15	2,188	15	15	1,935	1,935	Cattle/calves	Soybeans	Hogs	Corn	Dairy prods
Montana	33	1,742	30	30	921	31	31	821	821	Cattle/calves	Wheat	Barley	Hay	Sugarbeets
Nebraska	4	8,783	2	2	5,674	7	7	3,109	3,109	Cattle/calves	Corn	Hogs	Soybeans	Sorghum grain

—continued

Table 12 continued.

States ranked by cash receipts, 1992¹

State	Total		Livestock and products		Crops		State's top ranking commodities by value of cash receipts				
	Rank	Cash receipts	Rank	Cash receipts	Rank	Cash receipts	1	2	3	4	5
Nevada	47	273	44	202	47	71	Cattle/calves	Dairy prods	Hay	Potatoes	Grnhs/nurs
New Hampshire	48	144	48	65	45	79	Dairy prods	Grnhs/nurs	Apples	Hay	Eggs
New Jersey	39	657	45	192	38	465	Grnhs/nurs	Dairy prods	Eggs	Peaches	Tomatoes
New Mexico	34	1,530	29	1,040	36	490	Cattle/calves	Dairy prods	Hay	Peppers, chili	Pecans
New York	24	2,946	18	1,914	29	1,032	Dairy prods	Grnhs/nurs	Cattle/calves	Apples	Potatoes
North Carolina	10	5,181	9	2,795	12	2,386	Tobacco	Broilers	Hogs	Turkeys	Grnhs/nurs
North Dakota	23	3,094	34	755	13	2,339	Wheat	Cattle/calves	Barley	Sunflowers	Sugarbeets
Ohio	14	4,167	21	1,580	10	2,587	Soybeans	Corn	Dairy prods	Broilers	Hogs
Oklahoma	18	3,635	12	2,498	25	1,137	Cattle/calves	Wheat	Grnhs/nurs	Wheat	Dairy prods
Oregon	28	2,490	33	795	18	1,695	Cattle/calves	Grnhs/nurs	Dairy prods	Broilers	Onions
Pennsylvania	19	3,618	11	2,554	27	1,064	Dairy prods	Cattle/calves	Grnhs/nurs	Mushrooms	Eggs
Rhode Island	49	72	49	13	49	60	Grnhs/nurs	Dairy prods	Eggs	Potatoes	Cattle/calves
South Carolina	36	1,177	38	545	34	632	Tobacco	Broilers	Cattle/calves	Soybeans	Cotton
South Dakota	21	3,229	17	1,966	21	1,263	Cattle/calves	Wheat	Hogs	Corn	Soybeans
Tennessee	30	2,103	28	1,061	28	1,042	Cattle/calves	Dairy prods	Cotton	Tobacco	Soybeans
Texas	2	11,620	1	7,523	5	4,097	Cattle/calves	Cotton	Dairy prods	Grnhs/nurs	Sorghum grain
Utah	38	738	37	556	43	182	Cattle/calves	Dairy prods	Hay	Turkeys	Grnhs/nurs
Vermont	45	452	40	389	48	63	Dairy prods	Cattle/calves	Grnhs/nurs	Hay	Maple prods
Virginia	29	2,134	24	1,353	32	781	Cattle/calves	Broilers	Dairy prods	Tobacco	Turkeys
Washington	13	4,454	22	1,532	8	2,922	Apples	Cattle/calves	Dairy prods	Wheat	Potatoes
West Virginia	46	343	42	267	46	75	Cattle/calves	Broilers	Dairy prods	Turkeys	Apples
Wisconsin	9	5,499	6	4,313	24	1,186	Dairy prods	Cattle/calves	Corn	Hogs	Grnhs/nurs
Wyoming	37	773	35	606	44	167	Cattle/calves	Sugarbeets	Hay	Sheep/lambs	Dry beans
United States		171,168		86,358		84,810					

¹All cash receipts data are reported in million dollars. Additional information about ranking of States and commodities by cash receipts can be found in the annual report "Ranking of States and Commodities by Cash Receipts," ERS, USDA published annually in the early fall.

Leading States for cash receipts, 1992*Top 10 States by their value of cash receipts*

Commodities	Rank	Value	1	2	3	4	5	6	7	8	9	10
		<i>Million dollars</i>	<i>State and million dollars</i>									
Total		171,168	CA	TX	IA	NE	IL	MN	KS	FL	WI	NC
			18,234	11,620	10,330	8,783	7,634	7,082	7,000	6,145	5,499	5,181
Livestock & poultry	1	86,358	TX	NE	IA	CA	KS	WI	MN	CO	NC	AR
			7,523	5,674	5,614	5,055	4,558	4,313	3,622	2,955	2,795	2,702
Crops	2	84,810	CA	IL	FL	IA	TX	MN	NE	WA	IN	OH
			13,179	5,431	4,985	4,716	4,097	3,460	3,109	2,922	2,684	2,587
Cattle and calves	1	37,882	TX	NE	KS	CO	IA	OK	CA	SD	MN	MO
			5,645	4,620	4,069	2,526	2,071	1,931	1,423	1,296	972	882
Dairy products	2	19,848	WI	CA	NY	PA	MN	TX	MI	WA	OH	IA
			3,133	2,608	1,528	1,485	1,250	760	711	646	624	543
Corn	3	14,742	IL	IA	NE	IN	MN	OH	KS	TX	MO	MI
			2,780	2,579	1,913	1,282	1,224	779	477	464	452	402
Soybeans	4	11,343	IL	IA	IN	MN	MO	OH	AR	NE	SD	KS
			2,026	1,918	1,011	988	807	786	543	496	308	299
Hogs	5	10,088	IA	IL	MN	NE	IN	NC	MO	SD	OH	KS
			2,741	1,042	865	777	739	730	455	347	324	272
Broilers	6	9,156	AR	GA	AL	NC	MS	TX	MD	DE	CA	VA
			1,530	1,268	1,195	856	665	554	404	402	351	330
Greenhouse and nursery	7	8,999	CA	FL	TX	OH	MI	NY	OR	NC	PA	OK
			1,882	1,024	628	471	387	375	370	317	305	274

—continued

Leading States for cash receipts, 1992*Top 10 States by their value of cash receipts*

Commodities	Rank	Value	1	2	3	4	5	6	7	8	9	10
		Million dollars	State and million dollars									
Wheat	8	7,641	ND 1,295	KS 1,124	MT 507	OK 493	WA 452	MN 402	TX 388	SD 381	ID 345	CO 237
Cotton	9	5,207	CA 1,122	TX 1,034	MS 668	AR 520	LA 429	AZ 304	TN 247	GA 213	AL 172	MO 157
Eggs	10	3,389	CA 278	GA 270	AR 265	IN 212	PA 197	TX 182	NC 180	AL 170	OH 170	MS 96
Tobacco	11	2,961	NC 1,050	KY 877	TN 246	SC 190	VA 190	GA 170	OH 42	IN 35	CT 33	FL 32
Hay	12	2,913	CA 449	WA 138	CO 136	KS 130	TX 122	ID 121	IA 113	PA 107	NE 104	NM 104
Turkeys	13	2,387	NC 475	MN 283	AR 197	CA 194	MO 164	IN 147	VA 138	IA 91	WI 1	TX 1
Potatoes	14	2,033	ID 526	WA 291	CA 131	ND 117	ME 113	WI 113	FL 93	OR 90	MI 82	MN 79
Tomatoes	15	1,819	FL 1	CA 749	VA 1	OH 40	GA 30	NJ 1	MI 23	SC 1	IN 18	PA 18
Grapes	16	1,713	CA 1,552	WA 67	NY 38	PA 15	AZ 12	MI 10	OR 10	GA 3	OH 3	AR 2
Apples	17	1,684	WA 913	CA 179	NY 129	MI 100	PA 46	VA 36	OH 25	NC 23	OR 22	WV 17

—continued

Leading States for cash receipts, 1992*Top 10 States by their value of cash receipts*

Commodities	Rank	Value	1	2	3	4	5	6	7	8	9	10
		Million dollars	State and million dollars									
Oranges	18	1,616	FL 1,076	CA 525	AZ 14	TX 1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Sorghum grain	19	1,397	TX 556	KS 317	NE 204	MO 84	AR 61	IL 32	OK 30	LA 27	NM 23	MS 16
Peanuts	20	1,286	GA 552	TX 183	AL 180	NC 126	VA 81	OK 77	FL 58	NM 19	SC 9	AZ 0
Rice	21	1,232	AR 531	CA 211	LA 186	TX 152	MS 116	MO 36	n.a.	n.a.	n.a.	n.a.
Sugarbeets	22	1,109	CA 146	ND 134	MI 118	WY 55	NE 54	MT 47	CO 38	TX 26	OR 15	OH 13
Lettuce	23	1,108	CA 877	AZ 172	CO 16	NM 9	NY 8	NJ 7	OH 4	FL 4	WA 2	MI 1
Cane for sugar	24	922	FL 478	LA 214	HI 196	TX 33	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Barley	25	852	ND 263	MT 146	ID 143	MN 85	WA 48	CA 27	CO 23	SD 23	WY 21	OR 19

n.a. = not applicable, no other State produces the commodity or the amount produced is valued at less than \$1 million.

¹Cash receipts data excluded to avoid disclosure of confidential information about individual producers.

4. Rural America

■ Rural Population

Today, the United States is primarily urban. People who live in large cities and their suburbs and in towns of at least 2,500 residents account for three-fourths of the total population. Rural people in the open country or in places with fewer than 2,500 residents numbered about 61.6 million in 1990.

Although rural population increased in both the 1970's and 1980's, its proportion of the total population fell slightly because the urban population grew even more rapidly. Farm residents numbered about 4.7 million in 1992, and are a small minority even in the rural population.

The farm population has declined in recent decades as increased mechanization of farming greatly reduced the work force required in agriculture. Future losses in the farm population will be small compared with those of the past because the present population is so small compared with its past level. Since farm population now represents a small portion of the total rural population, these changes in farm population have minor effect on overall rural population trends, except in the "Farm Belt."

After 1970, most rural counties that were losing population in the 1960's began to grow again because of job development, commuting, or their draw retirement destinations. However, after 1980, low farm income conditions and a slump in mining and

Table 14.

U.S. rural population, selected years¹

	<i>Total</i>	<i>Nonfarm</i>	<i>Farm²</i>
	<i>Millions</i>		
Previous farm definition:			
1950	54.5	31.5	23.0
1960	54.0	38.4	15.6
1970	53.9	44.2	9.7
Current definition:			
1980	59.5	53.4	6.1
1990	61.7	57.1	4.6
1992	NA	NA	4.7

¹Rural population includes all persons living in the open country and in towns of less than 2,500 inhabitants.

²Farm population, under the previous definition, consisted of persons on places of 10 or more acres if at least \$50 worth of farm products were sold in the reporting year, and places under 10 acres with \$250 worth of sales. Under the current definition, the farm population consists of persons living on places with annual sales of agricultural products of \$1,000 or more.

manufacturing employment led to slow but widespread decline in rural population. From 1980 to 1990, about half of all rural counties decreased in population, generally in the same areas that declined before 1970. Some rural counties, though, grew enough as retirement or recreation areas, or from commuting to urban jobs, to produce overall rural population growth.

Since 1990, there is evidence once again of increased retention of people in rural areas. From 1990 to 1992, the population of nonmetro counties grew at an annual pace about double that of the 1980's, with far fewer counties declining. This change has affected all types of counties and most regions of the country. Improvement in rural economic conditions is thought to be generally responsible for this change. But, recreation and retirement counties continue to be the most rapidly developing group. Declining population is still characteristic of areas that are dependent on farming, three-fourths of which have continued to have more people moving out than in.

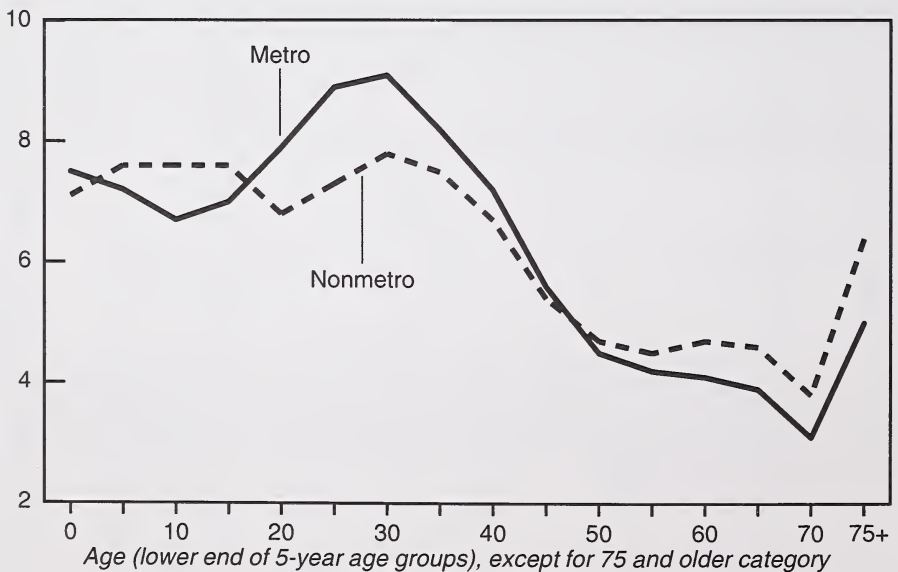
■ Age and Race

Age distributions reflect past demographic events (births, deaths, and migrations) and provide important clues about future changes in the labor supply and the demand for goods and services. The age distribution of the U.S. population is still dominated by the post-World War II rise in fertility rates known as the baby boom, whose members were born in 1946-64. From the time the youngest baby boomers graduated from high school and began their entry into the labor force in 1982 until the

Figure 19.

Age distribution of U.S. Metro and Nonmetro population, 1990

Percent



oldest members reach 65 in 2011, the United States has had and will continue to have a favorable balance of people in income-producing age groups. All parts of the country benefit from the current age structure.

However, because of migration that always consists primarily of young adults and their children, metro areas captured a much higher percentage of the “baby boomers.” The higher metro percentage of working-age adults (which also reflects higher nonmetro fertility rates) has been a persistent pattern for most of this century, but has never been greater than in 1990. While still quite visible in the metro age profile, the baby boom “bulge” in the nonmetro population profile has shrunk, and there are now as many children in nonmetro areas as young adults.

A metro area, by definition, must have an urban nucleus of at least 50,000 people, and may include fringe counties that are linked to that because their workers commute to the central area. All other counties are nonmetro.

Increases in life expectancy over the past 50 years and the aging of the large population segment born in the 1920’s increased the proportion of elderly between 1970 and 1990. The percentage of the population over age 75 rose dramatically, especially in nonmetro areas. Retirement migration to nonmetro areas, coupled with historically high levels of nonmetro outmigration of young adults and their children, placed a higher proportion of older people in nonmetro areas; the percentage of nonmetro population over age 65 was 15 percent in 1990, compared with 12 percent in metro areas. Children also continue to comprise a disproportionate share of the nonmetro population. However, the beginnings of a baby boom “echo” (the rise in births from baby boomers having children that began in the early 1980’s) can be seen only in metro areas. For the first time since 1960 the number of metro children 10 years old and younger outnumber metro teenagers. This is not true for nonmetro areas.

In 1990, 8.7 million nonmetro residents belonged to one of four minority groups: Blacks, Hispanics, Asians (including Pacific Islanders), and Native Americans. Blacks made up close to two-thirds of the nonmetro minority population in 1980, but their share declined as other groups grew much faster during the 1980’s. Minorities

Table 15.

Nonmetro population by race and ethnicity, 1980-1990						
Race/ethnic group	Population			Share of U.S. population in nonmetro areas		
	1980	1990	Change	Change	1980	1990
			1980-90	1980-90		
	Thousands			Percent		
White	46,753	47,863	1,110	2.4	25.4	24.7
Minority	7,624	8,688	1,064	14.0	16.5	14.1
Black	4,770	4,923	153	3.2	18.0	16.4
Hispanic ¹	1,786	2,329	543	30.4	12.2	10.4
Native American ²	759	971	212	27.9	49.5	49.6
Asian	309	465	156	50.5	8.3	6.4

¹Hispanics can be of any race.

²Native Americans include American Indians, Eskimos, and Aleuts.

Source: 1980 and 1990 Censuses of Population.

■ *The 1987 Census of Agriculture found only 23,000 black farm operators in the United States—less than 3 percent as many as in 1920, when there were more than 900,000 black farmers. In an extraordinary exodus after 1920, black families poured out of farming; many were seeking a better life in the cities, and many were pushed out by the near demise of cotton and tobacco tenant farming.*

Nearly half the black farmers in 1987 operated less than 50 acres of land, and 80 percent of them reported farm sales of less than \$10,000. The average age of the black operators had risen to 58 years, because few young people have entered farming. The 1992 Census of Agriculture, which is now being processed, is likely to show trends similar to those of earlier years.

constituted only 14 percent of the total nonmetro population in 1980 but they accounted for 50 percent of the people added during the 1980's. Their 15 percent rate of growth was more than five times the rate for Whites. For all minorities except Native Americans, however, growth rates were even higher in metro areas during the 1980's, so that the percentage of U.S. minorities living in nonmetro areas declined slightly from 16 to 14 percent. Minorities are still much more likely to live in metro areas than Whites, but their presence in nonmetro areas is increasing.

■ Nonmetropolitan Industry and Job Growth

Manufacturing, farming, mining, and other goods-producing industries have historically been the mainstay of the rural economy. However, these industries have been in a structural employment decline since 1979. Goods-producing industries normally spring back during recovery, but in recent years over periods of both recession and recovery, employment growth has been sluggish. Goods-producing industries lost about 522,000 jobs between 1979 and 1991. Farming employment declined by 422,000 jobs (1.7 percent annually), mining employment by 146,000 jobs (2.2 percent annually), and manufacturing by 91,000 jobs (0.2 percent annually).

Rural jobs lost in goods-producing industries were more than made up for by the steady growth of services-producing industries, which created almost 2.8 million net new jobs in 1979-91. Local consumer activities, business services, recreational services, and retailing accounted for most of the job growth in rural areas. These services created about 1.6 million net new jobs (3.8 percent growth, annually) and retail trade generated 807,000 net new jobs (2.1 percent annual growth).

Since 1979, employment growth has been slower in nonmetro than in metro areas. Employment in goods production declined at the same rate (0.5 percent annually) in both areas. Employment in services-producing industries, however, grew less rapidly in nonmetro (2.4 percent annually) than in metro areas (3.3 percent annually) in 1979-91.

The 1990-91 recession accelerated the loss of jobs in goods-producing industries and dampened job growth in services-producing industries. Rural areas, in contrast to the 1980's trend, weathered the recession better than urban areas. In nonmetro areas, total employment grew 0.9 percent annually during 1989-91; in metro areas, it grew only 0.1 percent annually. Employment in goods-producing industries declined 1.3 percent annually in nonmetro areas, whereas it declined 2.9 percent annually in metro areas. And in services-producing industries, employment grew 2.1 percent annually in nonmetro areas. It grew only 0.9 percent annually in metro areas.

Table 16.

Nonmetro and metro employment growth in selected industries, 1979-91

Industry	1979		1991		Change, 1979-91	Change, 1989-91
	Jobs	Distribution	Jobs	Distribution	Jobs	Annual rate
	Thous.	Percent	Thous.	Percent	Thous.	Percent
Nonmetro total	21,927	100.0	24,705	100.0	2,778	1.1 0.9
Goods-producing	8,619	39.3	8,097	32.8	-522	-0.5 -1.3
Manufacturing	4,265	19.4	4,173	16.9	-91	-0.2 -1.4
Services-producing	9,632	43.9	12,423	50.3	2,791	2.4 2.1
Services	3,607	16.5	5,251	21.3	1,644	3.8 3.1
Government	3,677	16.8	4,186	16.9	509	1.2 1.5
Metro total	91,036	100.0	112,338	100.0	21,302	2.0 0.1
Goods-producing	24,545	27.0	23,119	20.6	-1,426	-0.5 -2.9
Manufacturing	17,229	18.9	14,831	13.2	-2,398	-1.2 -2.9
Services-producing	51,632	56.7	72,193	64.3	20,561	3.3 0.9
Services	20,112	22.1	32,785	29.2	12,673	5.3 2.3
Government	14,859	16.3	17,026	15.2	2,167	1.2 1.0

Source: U.S. Department of Commerce, Bureau of Economic Analysis

Table 17.

Nonmetro Employment Growth by Industry, 1979-91

Industry	1979		1991		Change, 1979-91	Change, 1989-91
	Jobs	Distribution	Jobs	Distribution	Jobs	Annual rate
	Thous.	Percent	Thous.	Percent	Thous.	Percent
Nonmetro total	21,927	100.0	24,705	100.0	2,778	1.1 0.9
Goods-producing	8,619	39.3	8,097	32.8	-522	-0.5 -1.3
Farming	2,363	10.8	1,889	7.6	-474	-1.7 -2.2
Forestry, fishing, and agric. services	243	1.1	374	1.5	131	4.5 3.9
Mining	553	2.5	407	1.6	-146	-2.2 -3.1
Construction	1,195	5.5	1,254	5.1	59	0.4 -0.2
Manufacturing	4,265	19.4	4,173	16.9	-91	-0.2 -1.4
Services-producing	9,632	43.9	12,423	50.3	2,791	2.4 2.1
TCU*	921	4.2	1,023	4.1	102	0.9 1.0
Wholesale trade	765	3.5	807	3.3	42	0.5 0.6
Retail Trade	3,272	14.9	4,079	16.5	807	2.1 1.6
FIRE**	1,067	4.9	1,262	5.1	195	1.5 1.5
Services	3,607	16.5	5,251	21.3	1,644	3.8 3.1
Government	3,677	16.8	4,186	16.9	509	1.2 1.5

*Transportation, communications and public utilities

**Finance, insurance, and real estate

Source: U.S. Department of Commerce, Bureau of Economic Analysis

■ Nonmetropolitan Employment and Wages

In 1992, 27 million people 16 years old and older were in the nonmetropolitan work force, either at work or looking for work. On average, 7.1 percent or 1.9 million of these workers were unemployed during the year. The official unemployment rate ignores those jobless people not actively seeking work because they feel jobs are unavailable (discouraged workers) and part-time workers who want full-time jobs. The nonmetro adjusted unemployment rate, which includes discouraged workers and one-half of involuntary part-time workers, was 11 percent. Seasonally adjusted data for the third quarter of 1993 indicate that rural unemployment has fallen since 1992, as the national economic recovery from the 1990-91 recession has continued.

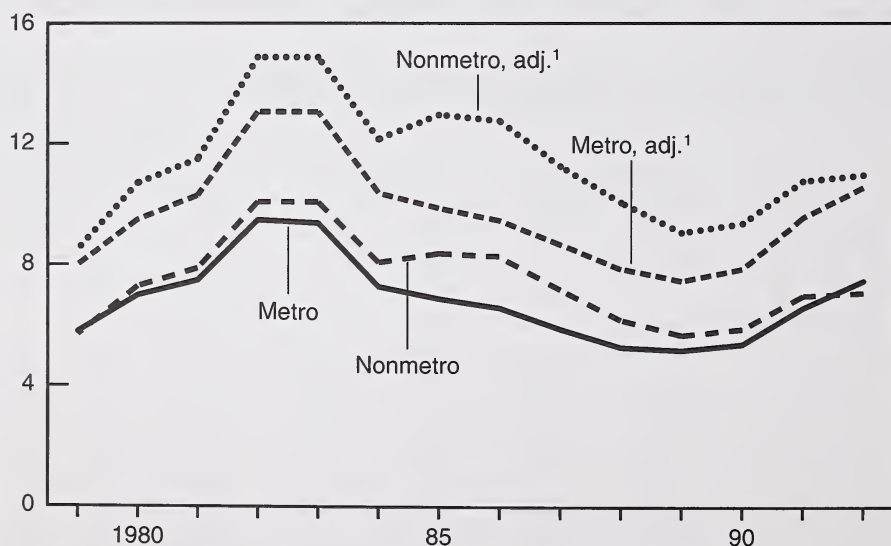
During the 1980's, unemployment rates were consistently higher in nonmetro areas than in metro areas. By 1992, however, the 7.1 percent nonmetro unemployment rate was slightly lower than the 7.5 percent metro rate. The nonmetro and metro adjusted unemployment rates show a similar pattern except that the nonmetro adjusted unemployment rate in 1992, at 11 percent, was still slightly higher than the 10.6 percent metro adjusted unemployment rate.

Unemployment rates are particularly high among nonmetro minorities and teenagers. In 1992, 18.7 percent of teenagers, 13 percent of Blacks, and 12.1 percent of Hispanics in nonmetro areas were unemployed. These groups face similar employment difficulties in metro areas.

Figure 20.

Unemployment rates, by residence, 1979-92

Percent



¹Includes discouraged workers and half of the workers employed part-time for economic reasons.

Source: Current Population Survey.

Note: Beginning in 1985, estimation procedures for Current Population Survey are based on the 1980 Census.

During the 1980's and early 1990's, nonmetro wages fell further behind metro wages. The metro/nonmetro average hourly wage gap grew by 89 cents between 1979 and 1992, increasing from \$1.61 to \$2.50 (in 1992 dollars). The steep rise in nonmetro unemployment during the 1981-82 recession was reversed during the remainder of the 1980's, but falling real (inflation-adjusted) wages persisted throughout the decade.

An increasing share of rural workers hold jobs paying so little that they would not earn enough to raise a family of four above the poverty line even if they worked full time, year round. In 1992, 39.8 percent of nonmetro workers received wages below this threshold (\$14,335), an increase of 12.5 percentage points since 1979 (when the comparable threshold was \$7,386). During the same time period, the share of metro workers earning poverty-level wages rose a smaller, but still substantial, 8.8 percentage points, from 21.5 percent to 30.3 percent.

Table 18.

Unemployment among various metro and nonmetro groups

	<i>Nonmetro</i>		<i>Metro</i>
	<i>1992</i>	<i>19931</i>	<i>1992</i>
	<i>Thousands</i>		
Civilian labor force	26,924	27,375	100,058
Total employment	25,003	25,601	92,595
Unemployed	1,922	1,774	7,463
Unemployment rate	<i>Percent</i>		
All civilian workers	7.1	6.5	7.5
Men	7.4	NA	7.9
Women	6.8	NA	7.0
Teenagers	18.7	NA	20.5
White	6.6	NA	6.5
Black	13.0	NA	14.3
Hispanic	12.1	NA	11.4
Adjusted unemployment rate ²	11.0	10.3	10.6

¹Seasonally adjusted values for the third quarter of 1993. Unemployment rates not available (NA) for demographic subgroups.

²Unemployment rate adjusted to include discouraged workers and one-half of all workers employed part-time for economic reasons.

Source: Current Population Survey, Bureau of the Census.

Table 19.

Average hourly wages for workers ages 16 and over

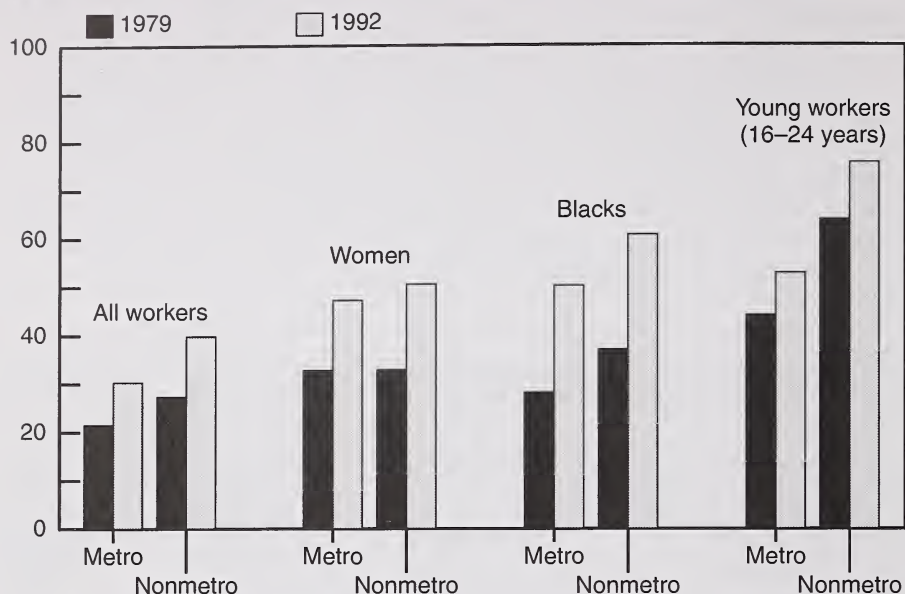
	<i>Average Hourly Wage</i>		<i>Change</i>
	<i>1979</i>	<i>1992</i>	<i>1979-92</i>
	<i>1992 dollars</i>		<i>Percent</i>
United States	11.80	11.67	-0.13
Metro	12.44	12.23	-0.21
Nonmetro	10.83	9.73	-1.10
Rural wage gap	1.61	2.50	0.89

Source: Current Population Survey, Bureau of the Census.

Figure 21.

Share of low-wage workers, 1979-92¹

Percent



¹Hourly wages such that full-time, year-round employment is insufficient to bring a family of four above the poverty line.

Source: Current Population Survey.

Female, minority, and young workers are especially likely to hold low-wage jobs. Over one-half of nonmetro working women (50.5 percent) earned poverty level wages in 1992, and 47.2 percent of metro working women earned such low wages. Sixty percent of nonmetro black workers, compared to 50 percent of metro black workers, earned low wages. The share of young nonmetro workers, ages 16 to 24, earning low wages was particularly high, reaching 75.7 percent in 1992, an increase of 11.8 percentage points since 1979. The share of young metro workers earning low wages was 52.8 percent in 1992, an increase of 8.7 percentage points since 1979. In both metro and nonmetro areas, many younger workers live with their parents and have lower income needs.

Rural Income and Poverty

For the last 5 years, rural median household income has been about 25 percent below the urban median income level. Rural median household income, \$24,691 in 1991, has stayed roughly between \$24,500 and \$24,700 in 1991 dollars since 1987. For the second consecutive year, however, urban median income declined, narrowing the rural-urban gap. This gap, however, is still wider than the rural-urban disparity of a decade earlier. Rural median household incomes were lowest for minorities, families headed by women, and nonfamily households.

The poverty rate in rural areas remained stable between 1990 and 1991, while the urban rate increased. Even with the urban increase, the 16.1-percent rural poverty rate was significantly higher than the 13.7-percent urban poverty rate. The poverty rate has been higher in rural areas than in urban areas since 1959, the first year for which poverty data are available using the official Government definition. The gap between rural and urban rates narrowed substantially in the 1960's and 1970's, but has not narrowed appreciably since 1980.

Over half (53 percent) of the rural poor live in the South, a disproportionate concentration compared with the South's 43 percent of the total rural population.

Families headed by women have the highest poverty rate of all family types. A higher percentage of families headed by women are poor in rural areas (39.2 percent) than in urban areas (34.8 percent).

Despite the attention given to inner city poverty among Blacks, the 1991 poverty rate for Blacks living in rural areas (35.8 percent) was comparable with the rate for Blacks living in central cities (32.9 percent). More than two-thirds (67.2 percent) of rural Blacks living in households headed by women and supporting minor children were poor, once again a poverty rate similar to that of central city counterparts (63.6 percent).

Table 20.

Median household income by race and ethnicity					
<i>Race/ethnicity</i>	<i>1991 household income</i>		<i>Nonmetro-metro gap¹</i>	<i>Change, 1990-91</i>	
	<i>Nonmetro</i>	<i>Metro</i>		<i>Nonmetro</i>	<i>Metro</i>
	<i>Dollars</i>			<i>Percent</i>	
Total	24,691	31,975	22.8	-0.1	-3.6
White	25,804	33,988	24.1	-5	-2.5
Black	13,120	20,211	35.1	-4.0	-3.6
Hispanic ²	19,354	23,052	16.0	1.0	-2.7

Note: Nonmetro-metro difference is statistically significant in each category. Change in household income from 1990 to 1991 is significant only for total and White households in metro areas.

¹Percent by which nonmetro income is lower than metro. ²Hispanics may be of any race.

Source: Current Population Survey

Table 21.

Median household income by household type			
<i>Household type</i>	<i>1991 household income</i>		<i>Nonmetro-metro gap¹</i>
	<i>Nonmetro</i>	<i>Metro</i>	
	<i>Dollars</i>		<i>Percent</i>
Family households	29,459	38,921	24.3
Married-couple	32,185	44,275	27.3
Male householder only	23,923	33,246	28.0
Female householder only	14,709	18,964	22.4
Nonfamily households	12,409	19,556	36.5

Note: Nonmetro-metro difference is statistically significant in each category.

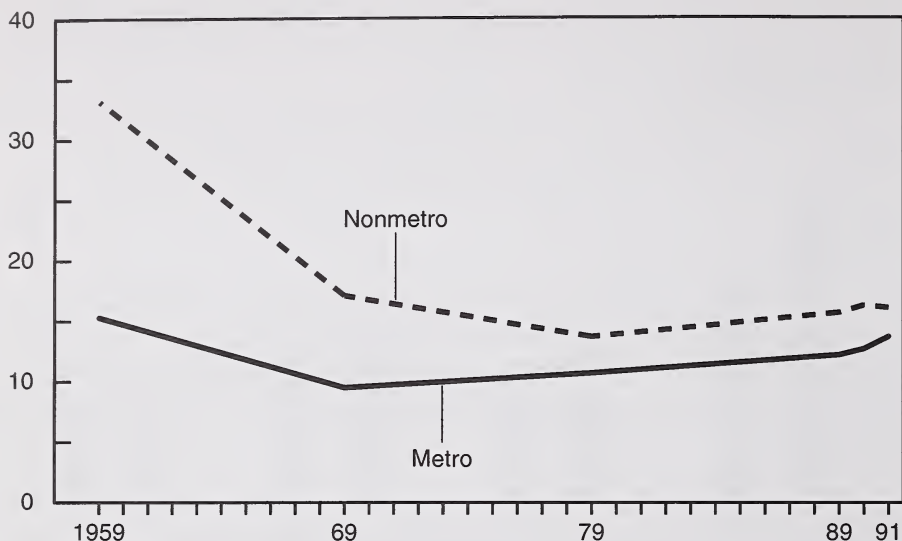
¹Percent by which nonmetro income is lower than metro.

Source: Current Population Survey.

Figure 22.

Poverty rates, 1959-91

Nonmetro-metro poverty differential narrowed over time, especially during the 1960's
Percent poor

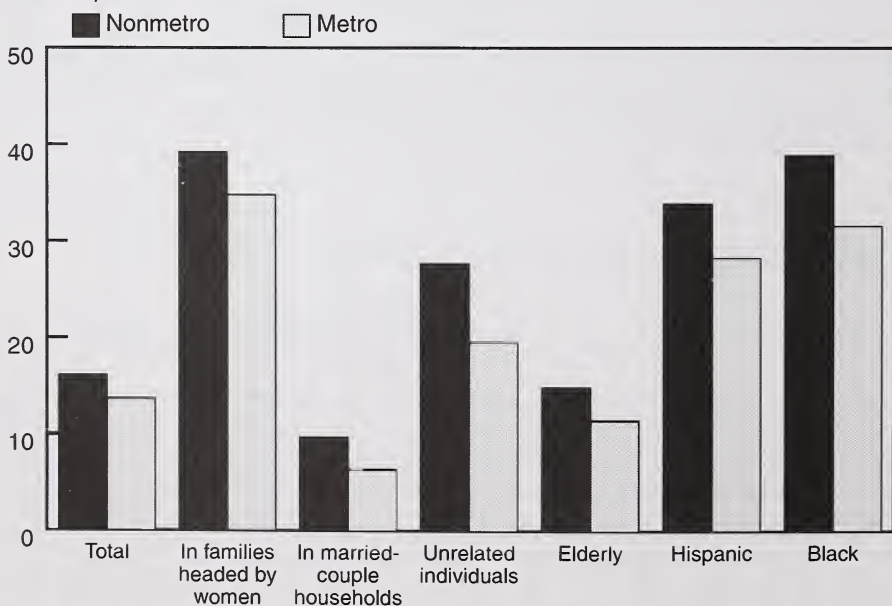


Source: Current Population Survey.

Figure 23.

Poverty rates by population group, 1991

Nonmetro residence increased poverty risk for all groups
Percent poor



Source: Current Population Survey.

■ Local Governments

In 1987, there were 91,186 local government units serving the Nation. These local governments employed the equivalent of 8.4 million full-time workers and spent over \$458 billion providing public services and constructing and maintaining public facilities. The majority of these government units were located outside Metropolitan Statistical Areas (MSA's).

Over the last 25 years, local government activity increased dramatically in metro and nonmetro areas alike. However, most of the growth occurred in the 1960's and early 1970's. During the late 1970's and 1980's, inflation-adjusted spending grew more slowly, reflecting relatively slow economic growth and slow growth in inter-governmental aid.

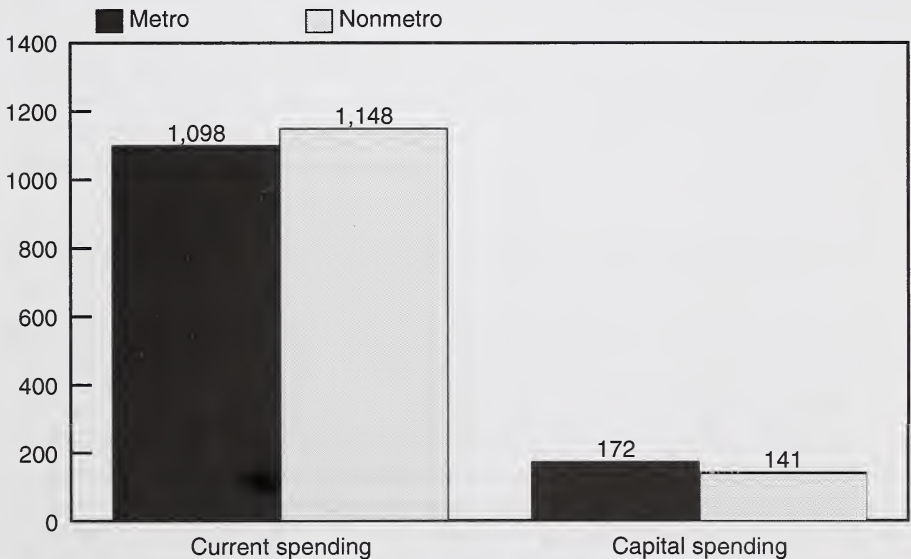
During the mid-1980's, when metro economies were outperforming nonmetro economies, local governments in metro counties (metro governments) were able to increase their locally raised revenues more than local governments in nonmetro counties (nonmetro governments). Although nonmetro governments received somewhat larger increases in intergovernmental aid than did metro governments, this was not enough to offset their slower growth in locally raised revenue. Consequently, by 1987 metro governments surpassed nonmetro governments in per capita expenditures, but the difference was slight (about 1 percent).

Although overall per capita spending levels are roughly the same for metro and nonmetro governments, nonmetro residents pay a substantially higher share of their

Figure 24.

Local government expenditures per capita, 1987

Dollars



Note: Per capita amounts are county averages.

Source: Bureau of the Census, 1987 Census of Governments.

income to maintain these services. In 1987, locally raised government revenues consumed 6.8 percent of income in nonmetro counties compared with 5.9 percent of income in metro counties.

A closer look at per capita expenditures, by type, sheds light on additional difficulties facing nonmetro local governments. In 1987, nonmetro governments spent 5 percent more on current services, and 22 percent less on capital projects (long-term investments, for example in roads and buildings), than did metro governments. The relatively high nonmetro current spending totals reflect the high costs of providing services in highly rural areas that are unable to take advantage of economies of scale. Many of these places (especially farming areas) lost population during the 1980's, further increasing their per capita cost of providing ongoing local government services. To compensate, many of these places had to postpone or cancel capital investment projects, reducing their capacity to provide services in the future.

In addition, nonmetro local governments in the 1990's must comply with a growing array of Federal and State mandates, such as more stringent environmental regulations. EPA estimates that the per capita compliance cost for many of these regulations is substantially higher for small communities than for large communities. This could present a significant challenge for nonmetro local governments already confronted with relatively high tax burdens, high costs of current services, and deferred capital spending.

■ Rural Public Services

Rural local governments face special problems in providing services for their citizens. The following are rural characteristics that affect ways in which rural local governments provide services:

- **Isolation**, the geographic separation of rural areas from metropolitan centers, leads to low utilization rates for rural public services, inadequate response times for emergency services, and the detachment of service delivery professionals from their colleagues.
- **Low population density** means higher per unit costs of some services and the inability to supply specialized help (for example, for the handicapped) because the area cannot support the services for so few clients.
- **A lack of fiscal resources** puts many rural communities in a financial squeeze with resulting service deprivation for local residents.
- **The lack of an adequate supply of trained personnel** has several implications for service delivery in rural communities. Critical functions may go understaffed, scarce employees are often overworked, service quality and quantity suffer, and long-range planning becomes difficult.

Isolated rural communities often suffer from medical services and facilities that are of lower quality than those found in metro areas. Even if medical care services were evenly distributed across the Nation, and were of equal quality, it is likely that nonmetro residents with chronically low incomes would still have serious difficulty receiving adequate care in a complex medical system where access is based mainly on the ability to pay.

Because many rural communities are small and isolated, and lack financial resources and trained personnel, similar problems are encountered in the provision of other rural public services. Various approaches have been taken to deal with these problems:

- Some communities contract with private-sector firms to provide services. For example, 36 percent of rural localities contract out legal services to for-profit firms rather than perform such services themselves.
- Some communities that want to attract new residents and businesses may find it beneficial to cooperate with other towns and share in the cost of furnishing services they cannot afford by themselves. Rural communities can work together in a variety of ways, and mutual aid is one way. Such an approach is commonly used for fire and police protection.
- Another approach is for one community to sell a particular service to another. About 23 percent of isolated rural governments contract with other governments for solid waste disposal, about 19 percent for the operation of libraries, and 18 percent for tax assessing.
- Still another method of cooperation is joint action, especially for large projects such as building and operating hospitals or airports. Various methods of dividing costs and creating joint committees or governing boards are worked out for such projects.

Although most rural community residents do not enjoy the same level of public services available to urban area residents, much progress has been made in improving some rural services over the last 30 years. Rising incomes and increased aid from higher level governments have made possible more and better programs for rural governments.

The management capacity of rural governments to plan and carry out these programs has improved. For example, in the 1960's and 1970's a nationwide system of multicounty substate regional agencies was developed to help rural communities plan for and manage their new population growth.

Still, the institutional base of rural governments is more fragile than that of urban areas, and these isolated governments remain more vulnerable to external changes than do metropolitan governments.

■ Federal Funding for Rural Area Development

Federal funds going to rural areas and small towns grew about as rapidly in the early 1980's as did Federal funding to metropolitan areas. In 1985, Federal funds reaching nonmetro counties averaged \$2,725 per person, up 27 percent from 1980. Funding to metro counties averaged \$3,327 per person, up 28 percent from 1980.

Federal funding includes payments, loans, and other transfers of money to support Federal, State, and local programs in agriculture, forest management, housing, transportation, education, health, public assistance, Social Security, veterans' benefits, defense, energy, and so on. It also includes interest on the national debt, but this has been excluded for analytic purposes. Figures on the metro-nonmetro distribution

of funds are based on the 93 percent of Federal funds that can be reliably traced to county levels.

A larger share of nonmetro funding is in the form of loans and loan guarantees—9 percent compared with 4 percent of metro funding. Loans must be repaid, so they have less value to the recipients than grants. Nonmetro counties also received a much larger share of their funds for income security programs, especially retirement and disability programs. About 42 percent of nonmetro funds were for such programs, compared with 32 percent of metro funds.

Nonmetro areas received less defense funding than metro areas, but funding of nondefense programs in nonmetro and metro areas was identical in 1985. Excluding loans, nondefense funding going to nonmetro areas was \$2,175 per person, compared with \$2,181 per person in metro areas.

Table 22.

Federal funds per capita, FY 1985

<i>Object class of funds</i>	<i>All counties</i>	<i>Metro counties</i>	<i>Nonmetro counties</i>
All Federal funds, including loans	3,184	3,327	2,725
Salaries and wages	486	548	287
Defense	249	283	141
Nondefense	236	265	145
Procurement contracts	742	898	243
Defense	592	726	161
Nondefense	150	172	81
Direct payments to individuals	1,434	1,403	1,533
For retirement	1,073	1,053	1,138
Other than retirement	361	350	395
Other direct payments	53	28	133
Grants	307	315	283
Loans	162	135	247
Direct loans	47	22	127
Guaranteed loans	115	113	120
All expenditures, excluding loans	3,022	3,192	2,478

U.S. Department of Agriculture

(the “People’s Department”)

5. Rural Economic and Community Development Programs: Improving the Quality of Life for Rural Americans

The rural development mission of USDA has been re-activated, and USDA has a new philosophy that has led to new relationships among government, industry, and communities. The process involves identifying resources and then using those resources in new ways, empowering people to help themselves.

USDA's Rural Community and Economic Development Programs can be grouped into three program areas: rural utilities; rural housing and community development; and rural business and cooperative development. Each area is described below.

■ Rural Utilities

USDA provides assistance to rural communities to ensure access to affordable and essential utilities: water, waste, electricity, and telecommunications services. One key program goal is to have running water for all homes in rural areas by the year 2000.

The historic mission in this area is to assist rural electric and telecommunications utilities in obtaining financing to provide affordable and reliable electric and telecommunications service in rural areas. USDA also assists rural communities in obtaining water and waste disposal services. These services help to improve the quality of life for people who live, work, or do business in rural America. Financial assistance includes loans and grants, guarantees of loans made by others, approval of loan security arrangements (which permit borrowers to obtain financing without a guarantee), grants for technical assistance, emergency water system repair or replacement, and a contracted technical assistance program. Specific programs include:

Water and Waste Disposal Loans. These are available to develop water and waste disposal (including solid waste disposal and storm drainage) systems in rural areas and towns with a population of 10,000 or less. Eligible entities are public groups, Indian tribes, and nonprofit corporations.

Water and Waste Disposal Grant. Grant funds are used to reduce water and waste disposal costs to a reasonable level for rural users. Grants of up to 75 percent of eligible project costs may be made in some cases. These grants may be made to the same types of applicants as are eligible for Water and Waste Disposal loans.

Emergency Community Water Assistance Grants. These may be made for 100 percent of project costs to assist rural communities experiencing a significant decline in quantity or quality of drinking water. Grants can be made to rural cities or towns with populations not exceeding 5,000 and a median household income not exceeding the State's nonmetropolitan median household income.

Technical Assistance and Training Grants. Funds are available for private nonprofit organizations to provide technical assistance and training on a wide range of issues relating to the delivery of water and waste disposal service to rural residents.

Solid Waste Management Grants. These grants are available for nonprofit organizations and public bodies to provide technical assistance and training to rural areas and towns of up to 10,000 to reduce or eliminate pollution of water resources and to improve planning and management of solid waste facilities.

Under the **Rural Water Circuit Rider Technical Assistance Program**, USDA uses the services of an intermediary to provide technical assistance to rural water systems. Circuit riders assist rural water systems with day-to-day operational, financial, and management problems. There are 52 circuit riders that cover the 48 continental United States. Their assistance may be requested by rural water systems or by USDA. When circuit riders are not working on specific requests, they call on rural water systems to offer assistance.

Electric Program. The Rural Electrification Act of 1936 authorized USDA as the lending agency with responsibility for developing a program for rural electrification with preference to nonprofit and cooperative associations and public bodies.

With USDA's help, rural electric utilities have obtained financing to construct electric generating plant and transmission and distribution lines to provide initial and continued reliable electric service to rural America.

Telecommunications Program. In 1949, the Rural Electrification Administration (REA) was authorized to make loans to provide telephone service in rural areas. Congress directed that the rural telephone program be conducted to "assure the availability of adequate telephone service to the widest practicable number of rural users of such service." The telecommunications program develops policy to help bring advanced telecommunications service to rural America. The Rural Telephone Bank (RTB) was established in 1971, by an amendment to the REA Act, to provide an additional source of financing for the telecommunications program. RTB loans have a slightly different set of eligibility criteria than those of the direct loan program established in 1949. RTB is managed by a 13-member board of directors. As provided by law, the REA Administrator is the bank's chief executive officer with the title of governor. Overall policy decisions and management are the responsibility of the board of directors; seven members are appointed by the President and six members are elected by the bank's stockholders.

Distance Learning. The Rural Economic Development Act of 1990 established other programs to promote economic and community development, including a Distance Learning and Medical Link Grant Program; this Act also gave borrowers the authority to defer REA loan payments to make investments in rural development.

■ Rural Housing and Community Development

USDA provides direct loans to creditworthy rural residents who would otherwise be unable to obtain financing for a family home, guarantees loans made by commercial lenders for rural housing, and makes direct loans to low-income rural residents. The agency finances multifamily housing for low-income rural residents.

Through the Community Facility Program, direct loans and loan guarantees are available to fund a variety of public improvements such as health care centers, day care centers, public safety, and public building projects, described below:

Direct Rural Housing Loans. Loans are made to low-income families for single-family housing in rural areas. Loans can be made to build, purchase, repair, and refinance homes. The maximum term can be 38 years, and the loan may be for 100 percent of the appraised value. The basic interest rate is determined periodically, based on the cost of money. Borrowers may qualify for an annual subsidy on the loan, which can reduce the interest rate to as low as 1 percent.

Self-Help Housing Technical Assistance Grants. Public and private nonprofit and local government entities can receive grants to carry out a technical assistance program which will help low-income families build homes in rural areas by the self-help method. Funds may be used to pay salaries, rent, and office expenses of the grantee.

Guaranteed Rural Housing Loan Program. USDA guarantees loans made by commercial lenders to moderate-income rural residents. Eligible applicants have sufficient income and acceptable credit, but lack the down payment to secure a loan. USDA provides up to 100-percent financing for eligible borrowers, and it provides guarantees to participating lenders against most losses.

Repair Loans and Grants. An owner-occupant may obtain a loan of up to \$15,000 to remove hazards to the health and safety of the family; senior citizens may receive a grant of up to \$5,000 for this purpose. These loans, available to very-low-income families, are made at 1 percent interest.

Housing Preservation Grants. Public and private nonprofit groups can receive grants for repair and rehabilitation of individual homes or rental units occupied by very-low-income and low-income families. Units repaired must meet local code standards when completed. Grantees may receive up to 20 percent of the grant for administrative costs. Selection is based on a competitive process held once every fiscal year, usually beginning in December.

Multi-Family Program. Loans are made to private, nonprofit corporations, consumer cooperatives, State or local public agencies, and individuals or organizations operating on a profit or limited profit basis to provide rental or cooperative housing in rural areas for persons of low and moderate income. The maximum term is 50 years. Rental assistance may be available to help defray rent paid by low-income families. Congregate housing for elderly people is also financed.

Farm Labor Housing Loans and Grants. Grants are available for housing for migrant, seasonal and year-round farm laborers. With grants of up to 90 percent of development costs, USDA assists nonprofit and public groups to develop affordable migrant housing complexes, including essential support facilities such as day care, laundries, and small medical clinics. In the off-season, migrant facilities can be

made available for the homeless. Year-round housing can also be provided through local sponsors for affordable family units. Loan terms are 1 percent interest for up to 33 years.

Housing the Homeless. USDA offers single-family housing inventory property to nonprofit organizations or public bodies for transitional housing for the homeless. Qualifying organizations may lease nonprogram property if they can show a documented need in the community for the type of housing use proposed and the financial ability to meet proposed housing costs.

Community Facility Loans. Direct and guaranteed loans are authorized to public and quasi-public bodies, nonprofit associations, and certain Indian tribes for essential community facilities, such as health care facilities, nursing homes, daycare centers, community centers, police stations, and fire and rescue buildings. Necessary related equipment may also be purchased.

The interest rate varies, depending on the income of the area to be served. Guaranteed loans bear an interest rate negotiated by the lender and the borrower. USDA guarantees a lender against losses up to 90 percent of principal and interest.

■ Rural Business and Cooperative Development

The creation of viable new businesses in rural America is at the heart of this USDA activity, which assists rural Americans in forming businesses that not only create new jobs, but also provide needed services to rural communities. The following programs help to facilitate this mission:

Business and Industry Program. Guaranteed loans are made to improve, develop, or finance businesses, industry, and employment and also to improve the economic and environmental climate in rural communities. Priority is given to loans based on unemployment levels in the area, the number of jobs that are created or saved, the cost at which the jobs are created or saved, and the leveraging of program assistance. Loan funds can be used for working capital, machinery and equipment, and real estate.

Intermediary Relending Program. Loans are made to nonprofit corporations, public agencies, Indian tribes, or cooperatives to establish revolving loan funds from which the borrower, in turn, makes loans to finance businesses or community development projects. Organizations that receive these loans from USDA are referred to as "intermediaries," and persons who borrow from intermediaries are referred to as "ultimate recipients." The term and interest rate to ultimate recipients are set by the intermediary. Ultimate recipients must not be located in a city with a population of 25,000 or more.

Rural Enterprise Development Grants. These are available to finance and facilitate development of small and emerging private business enterprises in rural areas or in cities of up to 50,000 people, with priority given to applications for projects in open country, rural communities of 25,000 or less, and economically distressed communities. The program includes grants made to third-party lenders to establish revolving loan programs.

Eligibility is limited to public bodies and private, nonprofit corporations. Public bodies include incorporated towns and villages, boroughs, townships, counties, States, authorities, districts, and Indian tribal groups in rural areas.

Rural Development Strategy Assistance. USDA provides assistance to rural communities in developing effective, long-term strategies for community and economic development. Staff members work on a national and regional basis to develop and implement creative strategies that involve partnerships between USDA and other agencies, both public and private, to enhance the economic competitiveness of rural communities. This assures that the various public programs work together closely in creating sustainable development over the long term.

In addition to providing specific funding aid to rural businesses, USDA also works closely with public and private organizations to assure that rural development programs complement the efforts of those organizations and to assure that such efforts are integrated into meaningful strategies for rural development.

USDA provides support and policy guidance to the State Rural Development Councils (SRDC). USDA State office staff represent the Department on the SRDC in the same manner as other SRDC members represent their departments or agencies.

The councils were created to improve rural development program coordination among Federal agencies; to undertake active partnerships with States, localities, the private sector, and tribal governments; and to improve the effectiveness of Federal rural development efforts by adopting a strategic and comprehensive approach to rural development.

Cooperative Services. The Cooperative Services (CS) component of the Rural Business and Cooperative Development area is devoted to preserving and improving the cooperative business system.

The direct role of CS is providing knowledge to improve the effectiveness and performance of cooperative businesses. Assistance is offered in several ways.

Technical assistance for rural cooperatives is provided in response to specific problems. Requests may come from a few rural residents wanting to organize a cooperative, from directors of established cooperatives, or from a federation of cooperatives comprised of hundreds or thousands of members desiring to improve operations. Help from CS may address business organization, operating efficiency, and member control issues.

Technical assistance is designed to benefit the requesting group, but the results often provide universal guidance for cooperative business strategy and help determine research priorities.

Research is conducted to acquire and maintain the base of information necessary for CS to give members relevant and expert assistance pertaining to their cooperatives.

CS has a distinct mission in cooperative education and information. It is assigned the responsibility, under the Cooperative Marketing Act of 1926, "to promote the knowledge of cooperative principles and practices and to cooperate, in promoting such knowledge, with educational and marketing agencies, cooperative associations, and others."

A central storehouse of information about farmer cooperatives in the United States is made available through more than 125 research reports and educational publications. Some of these cover basic principles of cooperation and key organizational and management elements required for successful cooperative effort. Others report the findings of research and technical assistance studies. Cooperative statistics are collected to detect growth trends and changes in their structure and operations. Data help support research and technical assistance activities. This information is used not only by cooperatives, but by the Legislative and Executive branches of Government in formulating policy related to agricultural cooperatives.

Alternative Agricultural Research & Commercialization (AARC) Center

AARC was established in 1990 to encourage research and assist with the commercialization of new nonfood, nonfeed uses for traditional and new agricultural commodities. Its goal is to create jobs, enhance economic development in rural economies, and diversify markets for raw agricultural and forestry products. Programming direction for the Center is provided by a nine-person board of directors; only one of them is a Federal employee, and the rest represent the processing, commercialization, scientific, managerial, financial, and commodity production interests. The Center operates as an independent entity under the general supervision and policy control of the Under Secretary for Rural Economic and Community Development.

Start-up companies involved with nonfood or nonfeed products derived from agricultural or forestry materials may apply for AARC support. Recent projects that have received AARC funding include:

- Production of ethanol from lignocellulosic materials,
- Production of pulp from waste straw,
- Kenaf-based newsprint, lawn mats, and paneling,
- Biodegradable lubricants from crambe and rapeseed oil,
- Biodiesel production and processing technology,
- Polychemicals from cornstarch,
- Biodegradable films and coatings from wheat,
- Cosmetics and lubricants from lesquerella,
- Oil absorption pads from wool,
- Molded furniture parts made of wood strand composites from recycled newspaper and soybeans, and
- Insulation material from milkweed floss.

The AARC program is intended to provide financial assistance at the precommercialization stage of a project—that point in a project when the costs are greatest and the ability to obtain lending from traditional sources is most difficult. AARC financial assistance is in the form of a repayable cooperative agreement, and it includes a repayment portion that recognizes the investment risk taken by the AARC Center. Assistance may be in the form of stock purchases. Applicants are expected to match the funds they seek from the AARC Center.

■ Team USDA Rural Development

Together, USDA's various rural development programs—covering Rural Utilities, Rural Housing and Community Development, and Rural Business and Cooperative Development—work in a coordinated manner to help rural Americans use their abilities to improve their quality of life.

These rural development program areas, reporting to the Under Secretary for Rural Economic and Community Development, assist with the creation of new businesses, and they help ensure that communities have the proper resources to provide safe, affordable housing; clean water and waste disposal systems; and affordable, reliable electric and telecommunications service.

6. Farm and International Trade Services

■ Farmer Programs of the Agricultural Stabilization and Conservation Service

The Agricultural Stabilization and Conservation Service (ASCS) administers farm commodity and resource conservation programs through a network of State and county offices. With over 2,700 local offices, county ASCS employees serve farmers in 3,054 agricultural counties.

The majority of ASCS employees work with producing farmers, who maintain a crop history by making an annual report of planted acres to the ASCS county office. These records form the basis for eligibility and participation in most Federal farm commodity programs. Typically, these offices record planting reports on about 360 million acres, 7 out of every 8 acres of cropland in the Nation.

The relationship with farmers goes back over 50 years, to the 1930's and the first agricultural acts establishing farm programs. Under the unique method of local administration that Congress set up at that time, farmers who are eligible to participate in Federal programs elect a three-person county Agricultural Stabilization and Conservation (ASC) committee. This committee reviews the county office operations and makes decisions on how the programs apply locally, giving farmers a say in how the Federal programs are applied in their county. The committee makes sure that farmers receive good service and complete information. This grassroots method of administration continues today.

■ Commodity Programs

Agricultural commodity programs are designed to improve the economic stability of agriculture and to help farmers adjust production to meet demand through acreage reductions and diversions. The goal is to avoid severe price swings for farmers and consumers. Assistance is offered through price support loans and purchases, as well as direct payments.

ASCS administers commodity programs for wheat, corn, grain sorghum, barley, oats, rye, oilseeds, rice, tobacco, peanuts, milk, cotton, wool, mohair, sugar, and honey.

ASCS makes Commodity Credit Corporation (CCC) price support loans to eligible farmers using the stored crop as collateral. Loans to producers are usually "nonrecourse." That is, when market prices are higher than the loan rate, a farmer may simply pay off a loan and market the commodity. However, if market prices are below the loan levels, a producer can forfeit or deliver the commodity to the Government to discharge the loan obligation in full. Thus, commodity loans promote orderly marketing by providing farmers with income while they hold their crops for later sale. Second, farmers get price protection with the option of forfeiting the com-

modity to CCC as a sufficient-value repayment. A marketing loan provision allows producers to repay nonrecourse loans at less than the announced loan rates whenever the world price for the commodity is less than the loan rate. Marketing loans are available for feed grains, wheat, oilseeds, upland cotton, and rice. Also, producers who are eligible to obtain a marketing loan, and who agree to forgo obtaining a loan, may receive a loan deficiency payment—the difference between the loan rate and the loan repayment rate.

The price support loan is seasonal and can be repaid with interest any time through loan maturity. For wheat and feed grains, the Farmer-Owned Grain Reserve offers producers the opportunity to extend the crop loan for longer periods. Storage payments are made for grain placed in the Reserve.

For most commodities, loans are made directly to producers on the unprocessed commodity through county ASCS offices. Loans and purchases are also made through cooperative marketing associations or through processors. For example, price support loans for eligible tobacco are available through the applicable tobacco grower associations. For tobacco, marketings in excess of a quota are subject to penalty and are ineligible for loans.

Two levels of price support loans for peanuts are available: a higher price support level for peanuts grown within the farm poundage quota, and a lower support level for additional peanuts grown on farms with a quota or on farms without a quota.

Price support loans on oilseeds and rye are available, and producers face no acreage limitations on those commodities.

For wheat, feed grains, rice, and cotton, an income support payment is provided by deficiency payments. The program participant receives a direct payment, based on the difference between a “target price” set by law and the higher of either the basic loan rate or the national average market price.

In most cases, to qualify for payments, commodity loans, and purchases, a farmer must participate in the acreage reduction, allotment, or quota programs in effect for the particular crop. For example, deficiency payments are made to those who join in the acreage reduction for the crop year. Reducing their production acreage by an established ratio, participants contribute to keeping commodity production in line with anticipated needs. The land they are holding from production must be protected from erosion. In recent years, farmers have been given the flexibility to shift program crop plantings, as well as options for oilseeds, industrial crops, and experimental crops.

Through incentive payments to producers, price support is available for shorn wool and mohair and for the sale of unshorn lambs. This program brings the national average price received by all producers up to the support level required by law. Producers who get a higher market price also get a higher incentive payment, thus encouraging producers to improve the marketing and quality of wool and mohair.

Commodity Purchases and Donations

The Government-owned Commodity Credit Corporation (CCC) provides financing for farm programs, and for the purchase, storage, and disposal of commodities in Federal stocks. ASCS employees are the administrative agents for CCC. One responsibility is the inventory management of CCC’s bulk and processed products.

Managing the farm products forfeited to CCC requires cooperation with the warehousing and transportation industries and private marketing channels. With over 10,000 commercial warehouses across the country approved for CCC storage contracts, ASCS commodity managers work closely with the commercial trade.

Under the dairy price support program, CCC buys surplus butter, cheese, and nonfat dry milk from processors at announced prices. These purchases help to maintain market prices at the legislated support level.

ASCS employees work with USDA's Food and Nutrition Service to purchase and deliver processed foods for the national school lunch and domestic feeding programs.

CCC inventories are not simply held, but must move into trade channels. ASCS has a field office in Kansas City, with staff to direct commodity operations. Plugged into telecommunicating trade networks, ASCS merchandisers regularly sell and swap inventories.

Beyond the marketplace, CCC commodities fill the need for hunger relief for needy families in the United States and for overseas assistance. ASCS coordinates the processing and overseas delivery of over 5 billion pounds of commodities each year. Donated for "Food for Peace" and programs administered by voluntary organizations, these American farm products and foods help in hunger relief around the world.

■ **Conservation Programs**

ASCS, in tandem with the Soil Conservation Service and the U.S. Forest Service, administers conservation programs to help preserve and improve the wealth and promise of America's farmlands.

Conservation Reserve Program

USDA's most ambitious conservation effort, CRP was authorized by the Food Security Act of 1985. It targets the most fragile farmland by encouraging farmers to stop growing crops on cropland designated by soil conservationists, and to plant a permanent vegetative cover instead. In return, the farmer receives an annual rental payment for the term of the multi-year contract. Cost shares are also available to help establish the permanent planting of grass, legumes, trees, windbreaks, or wildlife flora.

Agricultural Conservation Program

ACP is the primary means for ASCS to help farmers and ranchers nationwide carry out conservation and environmental practices. The program is designed to help alleviate soil, water, and related resource problems through cost-sharing. ACP assistance is available to install a variety of soil-saving practices, including terraces, grass cover, sod waterways, and other measures to control erosion. These practices also help farmers reduce sediment, chemicals, and livestock waste that contaminate streams and lakes.

Other programs provide assistance to plant trees and improve timber stands, to prevent the loss of wetlands for migratory waterfowl, and to control nonpoint-source

water pollution in rural America. The Forestry Incentives Program encourages landowners to plant trees on suitable open lands or cutover areas, and to perform timber stand improvement work for production of timber and other related forest resources. The Water Bank Program is designed to preserve and improve major wetlands as habitat for migratory waterfowl and other wildlife in major flyways. The Wetlands Reserve Program provides assistance to restore and protect wetlands, with participants agreeing to long-term easements on the enrolled land. The Colorado River Salinity Control Program provides cost-sharing to install conservation practices and irrigation improvements to reduce salinity levels in the Colorado River Basin.

All ASCS conservation programs are conducted in cooperation with other Federal and State agencies and conservation organizations.

Conservation Compliance, Sodbuster, and Swampbuster Rules

Since the Food Security Act of 1985 (the 1985 farm bill), a farmer's eligibility to receive farm program benefits is linked to his or her conservation activity. Farmers who have highly erodible fields must be practicing an approved conservation plan. Otherwise, they may be ineligible for certain USDA benefits in any year a crop is produced on such fields. Plowing highly erodible land that has not been in crop production (sodbusting) and converting natural wetland to cropland (swampbusting) also jeopardize eligibility for USDA program benefits.

Disaster and Emergency Assistance

In the aftermath of a natural disaster, ASCS can provide a variety of emergency assistance programs to farmers in a disaster area. For example, the agency can furnish CCC-owned grains to eligible livestock producers at reduced prices, and cost-share livestock feed purchases. To help rehabilitate the farmland damaged by a natural disaster, ASCS can assist farmers with cost-sharing to carry out emergency conservation practices under the Emergency Conservation Program.

In the event of a national security emergency, ASCS is responsible for preparedness plans and programs to assure food production and distribution, as well as the continued availability of farm machinery and feed, seed, and fertilizer.

Information Contacts

County ASCS offices are the primary points of contact for participation in programs and are listed in telephone directories under "U.S. Department of Agriculture."

State ASCS offices supervise county ASCS offices and are usually located in the State capital, or near the State land-grant university.

For information on commodity sales and purchases, contact: ASCS Kansas City Commodity Office, P.O. Box 419205, Kansas City, MO 64141.

Aerial photographs of U.S. farmland, used by ASCS as a basic tool to determine crop acreage, are also purchased extensively by other organizations and the public. Order forms and an index are available from county ASCS offices. For more information on services, including high-altitude photography, contact: ASCS Aerial Photography Field Office, P.O. Box 30010, Salt Lake City, UT 84130.

For general information about the agency and its programs, contact:
ASCS Information Division, P.O. Box 2415, Washington, DC 20013; telephone
(202) 720-5237.

■ **International Agricultural Trade**

The United States is the world's top exporter of agricultural products, with sales of \$42.5 billion in FY 1993. USDA's Foreign Agricultural Service administers programs that describe and support these exports as well as other international trade efforts.

■ **U.S. Agricultural Exports**

Consumers in countries around the world have a large appetite for U.S. agricultural products, particularly high-value U.S. consumer foods and beverages. Growing incomes, increased interest in Western-style foods, a greater demand for convenience, and a growing awareness of healthful foods among customers in major overseas markets have helped make consumer foods the fastest growing segment of U.S. agricultural products sold abroad. In fact, the U.S. share of the global market for these products rose from 10 percent in 1985 to 16 percent in 1992.

The United States also remains the world's largest supplier of bulk commodities. The estimated U.S. share of world trade for 1993 was 27 percent for wheat, 46 percent for feed grains, 18 percent for rice, 60 percent for soybeans, and 23 percent for

Table 23.

Top 15 U.S. agricultural exports, FY 1993

<i>Item</i>	<i>Billion dollars</i>
Wheat	4.7
Soybeans	4.6
Corn	4.3
Red meats	3.3
Processed fruit & vegetables, juices	2.1
Feeds and fodders	1.7
Fresh fruit	1.7
Cotton	1.5
Soybean meal and oil	1.5
Tobacco	1.4
Hides and skins	1.3
Poultry meat	1.0
Fresh vegetables	1.0
Snack foods (excluding nuts)	1.0
Tree nuts	0.9
Subtotal of top 15	32.0
Total U.S. agricultural exports	42.5

cotton. Since the mid-1970's, the U.S. share of the global market for bulk commodities has remained fairly stable at about 30 percent, with the exception of the mid-1980's, when the U.S. share fell to the low twenties.

U.S. agricultural exports generate employment and income in both the farm and nonfarm sectors. Agricultural exports create nearly 1 million jobs in the United States. Of that total, 340,000 jobs are created on the farm, which represents 10 percent of the farm labor force. In 1992, each dollar received from farm exports produced another \$1.44 in supporting activities to process, package, and ship them.

■ Major Markets

Although U.S. agricultural exports are shipped to more than 160 countries around the world, 75 percent of those exports went to just 10 markets in FY 1993, as shown in the chart below.

During the past two decades, U.S. agricultural exports have shifted toward developing countries. Just over 40 percent of all U.S. agricultural exports were shipped to these markets in FY 1993, up from about 30 percent two decades earlier. A sharp fall in grain sales to the European Union (EU) contributed to this shift, as the EU moved from being a net importer to a major net exporter of grains and other products.

Developing countries account for three-fourths of the world's population. East Asian countries and some Latin American countries have achieved rapid economic

Table 24.

Top 10 U.S. export markets, FY 1993

<i>Market</i>	<i>Exports</i>	<i>Share of total</i>
	<i>\$ Billion</i>	<i>U.S. exports</i>
		<i>Percent</i>
Japan	8.4	20
EU	7.0	16
Canada	5.2	12
Mexico	3.6	9
South Korea	2.0	5
Taiwan	2.0	5
Former Soviet Union	1.6	4
Hong Kong	0.9	2
Egypt	0.8	3
Philippines	0.5	1
Subtotal	32.0	75
Total U.S. exports	42.5	

growth, and consumers in these markets seek to improve their diets and consume more Western-style foods. As a result, a number of developing countries, such as Mexico, Brazil, Venezuela, Saudi Arabia, South Korea, Taiwan, Hong Kong, and a number of Southeast Asian countries have become important markets for U.S. agricultural products.

On a regional basis, Asia and North America are the two largest destinations for U.S. agricultural products. These markets accounted for nearly 60 percent of all U.S. exports in FY 1993. The Asian market grew more than any other regional U.S. agricultural export market during the 1980's, and is expected to remain the top regional market for the rest of this decade. U.S. shipments to Asia totaled \$16 billion in FY 1993, with Japan accounting for over half of that. Five of the current top 10 foreign markets for U.S. agricultural products are in Asia.

Another promising regional market is North America itself. In FY 1992, for the first time ever, U.S. exports to Canada and Mexico combined exceeded U.S. sales to either Japan or the EU. During each of the past 4 years, exports to Canada and Mexico have grown more than sales to any other regional market, including Asia and Western Europe. This trade will be bolstered even further by the North American Free Trade Agreement.

■ U.S. Agricultural Imports

The United States ranks among the world's largest importers of agricultural products, along with Germany, the former Soviet Union, and Japan. However, agricultural products make up only a small portion of total U.S. merchandise imports. In FY 1993, the \$24.4 billion in U.S. agricultural purchases accounted for only 5 percent of total U.S. imports.

Imports provide consumers with agricultural products which are either not produced or not available in sufficient quantities in the United States. Major imports generally not produced in the United States include certain spices, teas, cocoa, coffee, and bananas. Domestic production of other commodities, such as certain cheeses and oriental tobaccos, is insufficient to meet domestic demand. Some seasonal items, such as fresh fruits and vegetables, are imported during the U.S. off-season. Finally, agricultural products such as sugar are purchased in their raw form for processing and packaging in the United States, because foreign producers have a cost advantage over U.S. producers.

Agricultural imports provide jobs within the United States in transportation, storage, handling, processing, and distribution. Additionally, imports provide foreign countries with needed revenue in the form of U.S. dollars which, in turn, can be used to purchase other U.S. products.

Table 25.

Top U.S. agricultural imports, FY 1993*Million dollars***Competitive Products¹**

Fruits (including juices)	2,037
Red meats	2,580
Vegetables and preparations	2,440
Wines and malt beverages	1,878
Grain and feeds	1,639

Noncompetitive Products²

Coffee and products	1,502
Bananas and plantains	1,083
Cocoa beans and products	1,028
Rubber and allied gums	839
Spices	259
Subtotal	15,285
Total U.S. imports	24,409

¹Items which compete in some form with U.S. products.²Items not in direct competition with U.S. products.

Table 26.

Top 10 suppliers of U.S. agricultural imports, FY 1992

	Imports	Share of total U.S. imports
	\$ Million	Percent
EC	4,719	19
Canada	4,417	18
Mexico	2,691	11
Brazil	1,199	5
Australia	1,067	4
Indonesia	839	3
Colombia	816	3
New Zealand	772	3
Thailand	693	3
Philippines	482	2
Top 10	17,695	72
World total	24,409	

■ **Federal Export Assistance**

The U.S. Government supports exports through several types of initiatives intended to combat unfair competition, develop new markets for U.S. suppliers, and provide food assistance to food-deficit countries. Today, government-assisted sales cover about one-quarter of total U.S. exports.

Two agricultural export credit guarantee programs, known as GSM-102 and GSM-103, are backed by the Commodity Credit Corporation. These credit guarantee programs make it easier for foreign buyers to purchase U.S. farm commodities from private U.S. exporters by reducing the costs of potential loan defaults. Under GSM-102, U.S. banks provide the financing at commercial rates of interest with terms of up to 3 years. Under GSM-103, the payback period can be extended up to 10 years.

The Export Enhancement Program (EEP) uses CCC-owned commodities or cash payments as bonuses to exporters shipping to countries where the United States has lost market share due to unfair financial support that competitors receive from their governments. EEP supports the sale of many bulk commodities as well as poultry, eggs, and other high-value products. Similar programs help boost exports of dairy products and sunflowerseed and cottonseed oil.

The Market Promotion Program (MPP) is another U.S. Government export initiative designed to maintain and expand commercial export markets for U.S. suppliers using a foreign market development approach. MPP is authorized at \$100 million in FY 1994 to finance various promotional activities in more than 100 countries. This effort builds on the longstanding private-public market development partnership of the Cooperator Program.

■ **U.S. Response to World Hunger**

The United States is the world's largest donor of foreign food aid, providing over 50 percent of the annual total. The Food for Peace Program, authorized by Public Law 480 (P.L. 480), was enacted in 1954. Since then, \$43 billion has been provided for food needs around the world. An additional \$3.5 billion in commodity value has been provided through other U.S. food aid programs.

In FY 1993, the United States responded to worldwide food needs by providing over 13 million metric tons of agricultural commodities valued at \$2.5 billion to approximately 95 countries. These commodities were provided through the P.L. 480 program, the Section 416(b) program, and the Food for Progress program.

P.L. 480 focuses on combating world hunger, promoting sustainable development, expanding U.S. export trade, and fostering the development of private enterprise in developing markets. Title I provides government-to-government financing for sales of U.S. agricultural commodities at below-market interest rates, with repayment terms of up to 30 years. Title II commodities are distributed overseas by the recipient government, private voluntary organizations, and international organiza-

tions such as the World Food Program. Title III provides government-to-government food aid grants to support economic growth in less developed countries. Title I is administered by FAS; Titles II and III are administered by the U.S. Agency for International Development.

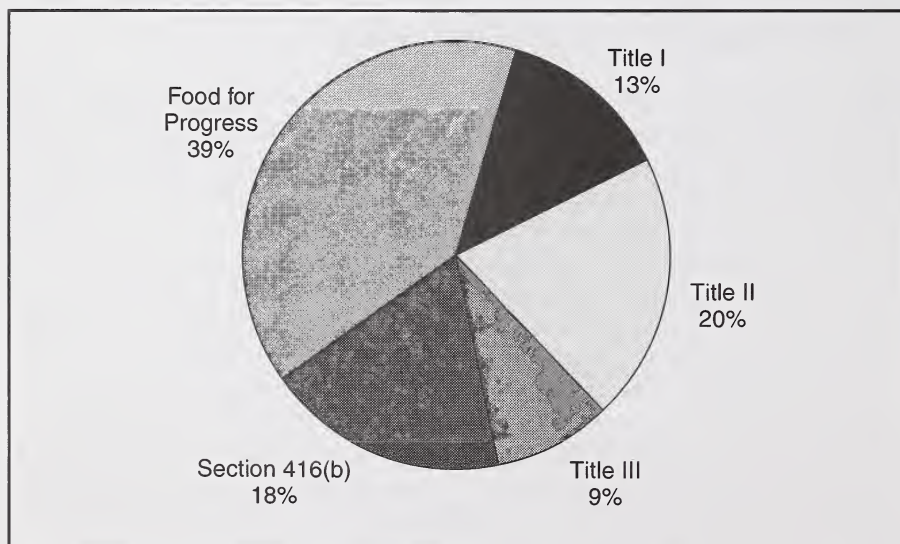
USDA also administers the Section 416(b) program authorized by the Agricultural Act of 1949. Commodities donated under this authority are surplus CCC stocks obtained through the CCC's price support programs and donated to needy people overseas through foreign governments, public nonprofit humanitarian agencies, and international organizations such as the World Food Program.

The third program through which USDA provides humanitarian assistance is the Food for Progress Program. Under this program, which was established by the Food Security Act of 1985, USDA provides commodities on grant or concessional credit terms to needy countries and emerging democracies to reward efforts toward agricultural reform and free enterprise. Agreements can be entered into by the United States with recipient governments, private voluntary organizations, nonprofit agricultural organizations, and cooperatives. The program uses funds provided to carry out Title I of P.L. 480 and the Section 416 authority. This program was used in FY 1993 to respond to the unprecedented food assistance needs in countries of the Former Soviet Union. Approximately 5.8 million metric tons of agricultural commodities valued at about \$939 million were programmed for these countries.

Figure 25.

U.S. Food Aid, FY 1993

Programmed Commodity Value \$2.5 billion



■ GATT

On December 15, 1993, the United States and more than 100 other nations concluded the 7-year Uruguay Round negotiations within the General Agreement on Tariffs and Trade (GATT). This historic agreement will result in significant improvements for U.S. agricultural trade.

For the U.S. agricultural industry the agreement will mean immediate improvements in market access, as well as long-term benefits. For example:

- Economic growth generated by the overall agreement will increase income globally, resulting in increased demand for U.S. agricultural exports.
- Agriculture will be included more fully under GATT disciplines. This will provide a significantly improved process for dealing with agricultural trade problems.
- Nontariff trade barriers will be replaced with tariffs, which will make import protection less arbitrary and help simplify future negotiations to liberalize agricultural markets.
- Binding all of the world's agricultural tariff rates will prohibit countries from exceeding their bound tariff rates without providing compensation.
- Trade-distorting internal support and export subsidies will be capped and reduced; countries will not be able to increase such subsidies beyond the levels specified in the agreement.
- For the first time, GATT will have rules that specifically allow challenges to the unjustified use of health-related barriers to imports.

■ NAFTA

The North American Free Trade Agreement (NAFTA) took effect January 1, 1994. Under NAFTA, U.S. agricultural trade will be enhanced for several reasons:

- All tariffs, quotas, and licenses that are barriers to agricultural trade between the United States and Mexico will be eliminated. By increasing overall trade, NAFTA will boost economic growth, especially in Mexico, which will lead to increased demand for food and agricultural products.
- By the end of the 15-year transition period for NAFTA, annual U.S. agricultural exports will likely be \$2.6 billion higher than without NAFTA. Over the same period, annual U.S. farm cash receipts are expected to increase by about 3 percent compared with projected receipts without NAFTA.
- U.S. agricultural exports to Mexico have grown significantly since the mid-1980's, rising from \$1.4 billion in 1986 to about \$3.7 billion in 1993. Mexican agricultural exports to the United States have also expanded in recent years. However, U.S. agricultural exports to Mexico have grown at a faster rate, so that the United States achieved a positive agricultural trade balance with Mexico in 1991, 1992, and 1993.

- Primarily a bulk commodity market prior to 1987 (mostly coarse grains and soybeans), Mexico is now one of the United States' largest and fastest growing high-value markets. High-value products now account for almost 70 percent of all U.S. agricultural sales to Mexico—compared with 40 percent in 1987.
- Mexico's population of about 92 million, which is growing at more than 2 percent a year and becoming increasingly urbanized, represents a significant market for U.S. agricultural products. Improved economic activity resulting from the agreement will boost income and stimulate demand for larger amounts and more diverse food and feed products. In addition, Mexico's comparative advantages suggest it will continue to be a net importer of food, feed, and fiber. These factors, combined with greater market access, assure continued growth in opportunities for U.S. agricultural exports.
- NAFTA will enable U.S. firms to establish new agricultural enterprises and to acquire existing businesses in both Mexico and Canada, and to receive the same treatment, with limited exceptions, as domestic companies in either country.

■ **Federal Crop Insurance**

The Federal Crop Insurance Corporation (FCIC) was created within the U.S. Department of Agriculture in 1932 by President Franklin D. Roosevelt. The primary goal of FCIC is to improve the economic stability of agriculture through a sound system of crop insurance.

Federal crop insurance covers unavoidable production losses due to adverse weather conditions—including drought, excessive rain, hail, wind, hurricanes, tornadoes, and lightning. It also covers unavoidable losses due to insect infestation, plant disease, floods, fires, and earthquakes. It is available in 3,026 counties on 52 crops; however, not every crop is insurable in every county.

Information Contact

Producers interested in obtaining crop insurance protection can contact their local USDA field office.

7. Food, Nutrition, and Consumer Services

■ Food and Nutrition Service

Nutrition is one of Agriculture Secretary Mike Espy's central missions for USDA. Building on the demonstrated successes of the WIC Program, Secretary Espy and Assistant Secretary Haas are integrating improved nutrition and nutrition education in all the food assistance programs.

For FY 1994, USDA's total budget is \$65.7 billion. The total appropriation for the 15 food assistance programs is \$39.5 billion—which represents 60 percent of the entire USDA budget.

The Food and Nutrition Service (FNS) is the agency that administers USDA's 15 Federal food assistance programs, most of which are directed at low-income Americans. These programs include the Food Stamp Program; the Special Supplemental Food Program for Women, Infants and Children (WIC); the National School Lunch Program; the School Breakfast Program; the Nutrition Education and Training Program; The Emergency Food Assistance Program; the Child and Adult Care Food Program; the Commodity Supplemental Food Program; the Summer Food Service Program; the Special Milk Program; Nutrition Program for the Elderly; the Food Distribution Program on Indian Reservations; the WIC Farmers Market Nutrition Program; the Food Distribution Program for Charitable Institutions; and the Nutrition Assistance Programs in Puerto Rico and the Commonwealth of the Northern Mariana Islands.

FNS is also the primary Federal agency that distributes food assistance in response to disasters.

The Food Stamp Program

The Food Stamp Program is the cornerstone of USDA food assistance programs. Begun as a pilot program in 1961 and made permanent in 1964, the program issues monthly allotments of coupons that are redeemable at participating retail food stores. Increasingly, the paper coupon or Food Stamp is being replaced with Electronic Benefit Transfer (EBT), usually an on-line system in which participants use magnetic strip cards to access their food stamp account at the point of sale. Secretary Espy has made conversion from food coupons to EBT a major priority and is accelerating this process, so that EBT should be adopted by States across the Nation by 1996. This new electronic system will eventually eliminate the printing of coupons, which will have a major impact on reducing street trafficking and fraud, thus assuring the public that their taxes are being used as intended.

Maryland has implemented EBT statewide. Iowa, New Jersey, New Mexico, Ohio, Pennsylvania, Minnesota, and Wyoming have EBT projects operating in various counties, while Alabama, Delaware, Florida, Georgia, Kansas, Illinois, Michigan, Mississippi, Missouri, New Hampshire, North Dakota, South Dakota, Oklahoma,

■ **Food Program Fact**

In the summer of 1992, 51.7 percent of all Food Stamp recipients were children and 6.61 percent were elderly. About 5.1 percent of recipients were employed full-time and about 26.8 percent lived in households where at least one person had earned income.

Oregon, California, South Carolina, Tennessee, Texas, and Utah have submitted proposals or are considering a variety of EBT options.

USDA also issues nutrition education materials to help Food Stamp recipients make better use of their benefits.

Eligibility: Eligibility and allotments are based on household size and income, assets, shelter costs, work requirements, and other factors. For a family of four, gross monthly income cannot exceed \$1,555 per month in FY 1994.

Benefits: The Food Stamp Program served an average of almost 27 million people each month in FY 1993. Average monthly benefits were \$67.95 per person. The amount of benefits is based on the USDA Thrifty Food Plan.

Funding: The total Food Stamp Program appropriation for FY 1994 is \$27 billion.

The National School Lunch Program

The National School Lunch Program (NSLP) is a federally assisted meal program operating in almost 93,000 public and nonprofit private schools and residential child care institutions. It provides nutritionally balanced, low-cost or free lunches to about 25 million children each day.

In 1993, four national hearings on Nutrition Objectives for School Meals were chaired by Assistant Secretary Ellen Haas to gain public comment and advice on how to improve school meals. Input from these hearings will be used in developing an action plan to bring the school meals into compliance with the Dietary Guidelines for Americans. Also in 1993, USDA released the results of the School Nutrition Dietary Assessment study, which showed that meals served in school cafeterias across the country fell far short of meeting the dietary and health needs of American children. Secretary Espy has proposed regulations to bring all school lunches into compliance with the Dietary Guidelines for Americans.

The NSLP is usually administered by State education agencies, which operate the program through agreements with local school districts. FNS administers the program at the Federal level. School districts and independent schools that choose to take part in the lunch program receive cash reimbursement and donated commodity assistance from USDA for each meal they serve. In return, they must serve lunches that meet Federal meal pattern requirements, and they must offer free and reduced-price lunches to eligible children.

Eligibility: Any child, regardless of family income level, can receive a meal through the NSLP. Children from families with incomes at or below 130 percent of poverty (\$18,655 for a family of four) are eligible to receive free meals. Children from families with incomes between 130 and 185 percent of poverty (\$26,548 for a

■ **Food Program Fact**

The National School Lunch Program is available in 95 percent of all public schools, representing 97 percent of all public school children. About 59 percent of all public school children participate in the lunch program.

In 1993 approximately 4.1 billion meals were served in U.S. school cafeterias. In other words, if all the cafeteria trays were placed end to end, they would reach from the Earth to the Moon and back almost five times.

family of four) are eligible for reduced-price meals. Children from families with incomes over 185 percent of poverty pay the full, locally established price.

Benefits: Most of the support USDA provides to schools comes in the form of a cash reimbursement for meals served. The reimbursement is highest for meals served to students who qualify to receive their meal free, and the lowest reimbursement is for students who pay full price. The current cash reimbursement rates are: Free, \$1.73; reduced price, \$1.33; and full price, \$0.17.

In addition to cash reimbursements, schools are entitled to receive commodity foods, called "entitlement" foods, at an annually adjusted per-meal rate (currently 14 cents) for each meal they serve. In addition, schools can receive additional commodities known as "bonus" commodities when these are available from surplus stocks purchased by USDA under price support programs. USDA commodities make up approximately 20 percent of the food served. The remaining 80 percent is purchased locally by the school food authority.

Funding: The total appropriation for the National School Lunch Program for FY 1994 is \$4.3 billion. Another \$641 million is included for the purchase of entitlement commodities.

The School Breakfast Program

The School Breakfast Program (SBP) provides cash assistance to States to initiate, maintain, or expand nonprofit breakfast programs in eligible schools and residential child care institutions. The program operates in almost 55,000 schools and institutions, serving a daily average of 5.7 million children. The program is administered at the Federal level by FNS. State education agencies administer the program at the state level, and local school food authorities operate it in schools.

Secretary Espy has made the expansion of SBP a top priority. In 1993, \$5 million in Federal grants were awarded to school districts in 35 States to help start school breakfast programs in the 1993-94 school year. The grants were the fifth in an ongoing series that were authorized by Congress in 1989. Since the grants were initiated, SBP participation has climbed from 3.8 million children to 5.7 million, a 50 percent increase.

Eligibility: Any child at a participating school may receive a meal through SBP. All children from a family meeting the criteria for eligibility, based on family size and income, may receive free or reduced-price breakfasts. Children from families with incomes at or below 130 percent of the poverty level (currently \$18,655 for a

■ **Food Program Fact**

SBP is the fastest growing of all the child nutrition programs and is now available in 60 percent of the schools offering the National School Lunch Program. Of the children eating breakfast, 82 percent receive it free of charge.

family of four) are eligible for free breakfasts. Children from families with incomes between 130 and 185 percent of the poverty level (currently \$26,548 for a family of four) are eligible for reduced-price breakfasts. Children from families with incomes over 185 percent of poverty pay the full locally established price for their breakfasts.

Benefits: Under Federal law, schools may not charge students who are eligible for free breakfasts. Schools may charge no more than 30 cents for a reduced-price breakfast. There is no Federal limit placed on how much a school may charge for breakfasts served to paying students—those from families with incomes above 185 percent of poverty.

Funding: SBP's total appropriation for FY 1994 is \$980.4 million.

The Nutrition Education and Training Program

The Nutrition Education and Training (NET) Program is the nutrition education component of the food assistance programs for children: the National School Lunch, School Breakfast, Summer Food Service, and Child and Adult Care Food Programs.

The goal of NET is to provide leadership in promoting healthy eating habits for our Nation's children by providing effective educational experiences to help children make informed food choices as a part of a healthy lifestyle.

Each year when Congress appropriates money for NET, the Secretary of Agriculture allocates funds to the States in the form of grants, usually to the State education agency. The size of a State's grant depends on the number of children enrolled in public or private schools; public and private nonprofit child care programs, including residential day care; and the Summer Food Service Program. Each State employs a NET coordinator who assesses the needs for nutrition education in the State and develops a plan to address the identified needs, establishing priorities for use of the funds available in a given year.

States use NET funds in a variety of ways, including to:

- Help educators learn the principles of nutrition and how to make them meaningful to their students through coordinated classroom and school cafeteria learning experiences
- Provide training for food service personnel in nutrition, nutrition education, and food service management
- Involve parents and the community in nutrition education.
- Develop nutrition education materials and make them available to students, parents, teachers, and food service personnel.

Eligibility: All children participating in or eligible to participate in the USDA Child Nutrition Programs.

■ **Food Program Fact**

In FY 1993, the program provided educational programs to 145,458 educators and 95,242 food service personnel in 24,642 schools.

Funding: In FY 1994, the total appropriation for the NET Program is \$10.3 million.

The WIC Program

The Special Supplemental Food Program for Women, Infants and Children (WIC) is a grant program whose goal is to improve the health of pregnant, breast-feeding, and nonbreastfeeding postpartum women, and infants and children up to 5 years old, by providing supplemental foods, nutrition education, and access to health care. A few State agencies provide food directly to participants, but most States provide WIC vouchers that can be used at authorized food stores.

As it is currently authorized, WIC provides each State with a set amount of money to serve its most needy WIC population. Because of documented successes of the WIC Program in improving the nutritional well being of participants, the Clinton Administration set a goal of expanding the program to full funding by the end of FY 1996, which will allow any eligible person to receive benefits. The 1995 budget for WIC would increase \$354 million over the 1994 budget level.

Eligibility: To be eligible for WIC, an applicant must meet State residency requirements; meet an income standard; and have been determined by a health professional to be at nutritional risk.

Benefits: In most States, WIC participants receive vouchers that allow them to purchase a monthly food package specially designed to supplement their diets. The foods provided are high in protein, calcium, iron, and vitamins A and C. The WIC foods include iron-fortified infant formula and infant cereal, iron-fortified adult cereal, vitamin C-rich fruit or vegetable juice, eggs, milk, cheese, and peanut butter or dried beans/peas. Special therapeutic infant formulas are provided when prescribed by a physician for a specified medical condition. The Food and Nutrition Service also encourages WIC mothers to breastfeed their babies whenever possible. WIC women who exclusively breastfeed their babies receive an enhanced food package which includes tuna and carrots.

Funding: The total appropriation for the WIC Program in FY 1994 is \$3.2 billion.

■ **Food Program Fact**

The 1990 USDA study, The Savings in Medicaid Costs for Newborns and Their Mothers from Prenatal Participation in the WIC Program, showed WIC to be effective in improving the health of newborns and infants as well as mothers. For every \$1 spent on WIC, the study reported, there is a \$3 savings in Medicaid costs.

The WIC Farmers' Market Nutrition Program

The WIC Farmers' Market Nutrition Program, established in 1992, is the newest food assistance program in USDA. The program has two goals: To provide fresh, nutritious, unprepared foods from farmers' markets to women, infants, and children who are at nutritional risk, and to expand consumers' awareness and use of farmers' markets. This program, operated in conjunction with the regular WIC Program, is offered in 11 States—Connecticut, Iowa, Maryland, Massachusetts, Michigan, New York, North Carolina, Pennsylvania, Texas, Vermont, and Washington.

Eligibility: Women, infants (over 4 months old), and children who receive WIC Program benefits, or who are on a waiting list for WIC certification, are among those eligible to participate.

Benefits: Fresh, nutritious, unprepared foods, such as fruits and vegetables, can be purchased with FMNP coupons. State agencies have the authority to limit FMNP sales to specific foods that are locally grown to encourage participants to support the farmers in their own State.

Funding: The total appropriation for FMNP for FY 1994 is \$5.5 million, which is earmarked from federally appropriated WIC funds.

■ Food Program Fact

Studies have shown that where the WIC Farmers' Market Nutrition Program has been available, WIC participants have consumed more fresh fruits and vegetables.

The Commodity Supplemental Food Program

The Commodity Supplemental Food Program (CSFP) is a program of grants to States, administered by FNS at the Federal level. CSFP provides commodity foods to supplement the diets of low-income infants; children up to the age of 6; pregnant, postpartum, and breastfeeding women; and persons 60 years of age and older.

CSFP operates at 63 sites in 20 States, including the District of Columbia, and two Indian Tribal Organizations. USDA donates commodity foods to the State agencies for distribution, and provides funds to State and local agencies to cover certain administrative costs.

Eligibility: State agencies that administer CSFP may establish a residency requirement and/or require applicants to be determined at nutritional risk in order to be eligible for program participation. To be income-eligible, women, infants, and

■ Food Program Fact

CSFP has grown from a \$48 million program in 1984 serving 150,100 participants to a \$104.5 million program in 1994 serving more than 370,000 people.

children must be eligible for benefits under existing Federal, State, or local food, health, or welfare programs, and must not currently be receiving WIC benefits. Elderly persons must have an annual gross income at or below 130 percent of Federal Poverty Income Guidelines (\$12,792 for a family of two, according to guidelines effective through June 30, 1995).

Benefits: There are six food packages for different categories of participants. The food packages are not intended to provide a complete and balanced diet, but rather are supplements that are good sources of the nutrients often lacking in participants' diets.

Funding: The total appropriation for CSFP for FY 1994 is \$104.5 million.

The Child and Adult Care Food Program

The Child and Adult Care Food Program (CACFP) provides Federal funds and USDA-donated foods to nonresidential, public and private, nonprofit child care facilities and certain adult day care centers to serve nutritious meals and snacks. Federal funds come in the form of reimbursements to participating institutions for meals served under the program.

The program was formerly known as the Child Care Food Program. The name was changed in 1989 to reflect the addition of an adult day care component. The program is administered at the Federal level by FNS.

In return for Federal support, the institutions that participate in CACFP must serve meals that meet Federal meal pattern guidelines. CACFP generally operates in child care centers, outside-school-hours care centers, sponsored family and group day care homes, and certain adult day care centers.

Eligibility: Except in family and group day care homes, eligibility requirements for the Child and Adult Care Food Program are the same as the three levels of eligibility for the National School Lunch and School Breakfast Programs. In family and group day care homes, only the provider's own children are required to document income eligibility; all other meals are reimbursed at the same rate.

Benefits: Service providers receive cash reimbursements for eligible meals. In addition, day care institutions are entitled to receive USDA commodity foods at an annually adjusted per-meal rate, currently 14 cents per meal, or they may elect to receive cash in lieu of donated foods. Family and group day care home sponsors receive reimbursement for their administrative costs based on the number of homes served.

Funding: The total appropriation for the Child and Adult Care Food Program for FY 1994 is \$1.49 billion.

Food Program Fact

Nearly all Head Start centers participate in the Child and Adult Care Food Program.

The Summer Food Service Program

The Summer Food Service Program (SFSP) funds meals and snacks for children in needy areas during the summer, when school is not in session during the summer. In areas where schools operate year-round, the SFSP may be available at other times. Local sponsorship is limited to public or private nonprofit school food authorities; units of state, local municipal, or county government; public or private nonprofit colleges and universities that are operating the National Youth Sports Program; public or private nonprofit residential summer camps; and private nonprofit organizations that operate special summer or school vacation programs.

Eligibility: Any child age 18 or under, or any person over 18 with mental or physical disabilities who participates in a program established for the disabled, may receive meals through the SFSP.

Benefits: At most feeding sites, participants receive either one meal (a breakfast, a lunch, or a snack) or two meals (lunch and either a breakfast or a snack). Residential camp sponsors and sites that primarily serve children from migrant households may be approved to serve up to four meals a day.

Funding: The total appropriation for the SFSP for FY 1994 is \$281.3 million.

■ **Food Program Fact**

In 1989, the law was changed to allow meal providers who conduct food service primarily for homeless children to serve as approved food service sites.

The Special Milk Program

The Special Milk Program (SMP) provides cash reimbursement for milk served to children in public and private nonprofit schools, and in residential or nonresidential child care institutions, provided they do not participate in other Federal meal service programs.

However, schools in the National School Lunch Program and/or School Breakfast Program that operate split-session prekindergarten and kindergarten programs may participate in the SMP to provide milk to children in those programs who attend half-day sessions and do not have access to the scheduled lunch or breakfast service periods.

Eligibility: The SMP is available to all children in participating schools and institutions regardless of family size and income, except in NSLP/SBP schools operating the SMP solely for prekindergarten and kindergarten children. Low-income children may qualify to receive their milk free, depending on the school's choice of program options. When local officials choose to offer free milk under the program, any child from a family with income at or less than 130 percent of poverty (currently \$18,655 for a family of four) is eligible.

■ **Food Program Fact**

Expansion of the NSLP and the SBP, both of which include milk, has led to a substantial reduction in the SMP since its peak in the late 1960's.

Benefits: Schools or institutions may choose from among pasteurized fluid types of unflavored and flavored whole milk, low-fat milk, skim milk, and cultured butter-milk that meet state and local standards and contain vitamins A and D at levels specified by the FDA.

Funding: The total appropriation for the SMP for FY 1994 is \$20.3 million. The annually adjusted reimbursement rate for each half-pint of milk sold to children in school year 1993-1994 is 11 cents. Half-pints of milk served free at local option are reimbursed at cost.

The Nutrition Program for the Elderly

The Nutrition Program for the Elderly (NPE) is administered by the U.S. Department of Health and Human Services (HHS). Under provisions of the Older Americans Act of 1965, USDA contributes commodity foods and/or cash to HHS programs for the elderly. USDA provided reimbursement for more than 242 million meals served in FY 1993.

Eligibility: Age is the only factor used in determining eligibility. People age 60 or older, and their spouses of any age, are eligible for NPE benefits. Indian Tribal Organizations may select an age below 60 for defining an "older" person for their tribes.

Benefits: Under the NPE, USDA provides cash reimbursements and/or commodity foods for meals served through HHS programs. Meals served by a site must meet a specified percentage of the Recommended Dietary Allowances (RDA) in order to qualify for cash or commodity assistance. If three meals are served daily, they must provide 100 percent of the RDA; two meals must meet two-thirds of the RDA; and one meal, one-third.

Funding: The total appropriation for the NPE for FY 1994 is \$150 million.

■ **Food Program Fact**

In FY 1993, an average of nearly 920,000 meals were served each day.

The Food Distribution Program on Indian Reservations

The Food Distribution Program on Indian Reservations (FDPIR) provides monthly food packages to Native Americans living on or near a reservation. Many Native Americans choose to participate in the FDPIR as an alternative to the Food Stamp Program because they do not have easy access to food stores, or because prices are very high in nearby stores.

The program is administered at the Federal level by FNS. State agencies or Indian Tribal Organizations are responsible for all aspects of program operations, including storage and distribution, certification, and nutrition education.

Eligibility: Native American households are certified based on income, resources, and nonfinancial criteria. They can be certified as eligible for participation for a period of 1 to 12 months, depending on the stability of the household's circumstances.

Benefits: The food packages provided through FDPIR are designed to accommodate the special health needs of Native Americans. Many of the foods in the current food package were recommended by a 1986 FNS task force that explored ways to modify the package to better meet the distinct health needs and preferences of Native American communities. Typical food packages weigh between 50 and 75 pounds and contain canned meats and fish products; vegetables, fruits, and juices; dried beans; peanuts or peanut butter; milk, butter, and cheese; pasta, flour, and grains; adult cereals; corn syrup or honey; and vegetable oil and shortening. The value of the monthly food package for FY 1993 was \$37.68 per person.

Funding: The total appropriation for FDPIR for FY 1994 is \$68.6 million.

■ Food Program Fact

In 1993, FNS published a series of 12 health and nutrition fact sheets for monthly distribution to households participating in FDPIR. The fact sheets address health topics of concern to Native Americans, and include healthy recipes using foods distributed through the program.

The Emergency Food Assistance Program

Originally named the Temporary Emergency Food Assistance Program, TEFAP provides needy Americans, including low-income and unemployed persons, with USDA-donated foods for household use. The foods are free, but recipients must meet certain eligibility criteria. States designate local agencies such as churches and food banks to distribute the food.

The program was authorized in 1981 to help reduce Federal food inventories and storage costs by distributing surplus commodities to the needy. The 1988 Hunger Prevention Act required the Secretary of Agriculture not only to distribute surplus foods from Federal inventories, but also to purchase an additional \$120 million worth of food for distribution to needy households.

Eligibility: Each State agency must establish income-based criteria for determining eligibility. An acceptable income standard may include participation in any other

■ **Food Program Fact**

Homeless people may be eligible to receive benefits. In a nationally representative survey in 1986, one-tenth of 1 percent of TEFAP recipients identified themselves as homeless.

existing Federal, State, or local food, health, or welfare program for which income is considered as a basis for eligibility. States may adjust the income criteria based on the level of need to ensure that assistance is provided only to those in need.

Benefits: An estimated 23 million food packages are distributed to households each year. These include a variety of foods, depending on market conditions. Typically, canned and dried fruit, canned vegetables, canned meats, peanut butter, butter, and cornmeal are available.

Funding: The total appropriation for TEFAP for FY 1994 is \$120 million (\$80 million for the purchase of commodities and \$40 million for administrative funding).

Food Donations to Charitable Institutions, Soup Kitchens, and Food Banks

Thousands of charitable institutions throughout the country rely on foods donated by USDA to help provide meals to needy people. These institutions range from churches operating community kitchens for the homeless and destitute, to orphanages, to homes for the elderly. Other eligible institutions include Meals-on-Wheels programs, soup kitchens, temporary shelters, correctional institutions offering rehabilitative activities, group homes for the mentally retarded, and hospitals that offer general and long-term health care. Food donated to charitable institutions comes from agricultural surpluses acquired by USDA as part of its price stabilization and surplus removal authority.

Congress created the Food Distribution Program for Soup Kitchens and Food Banks through Section 110 of the Hunger Prevention Act of 1988. Its primary purpose is to serve the homeless.

Eligibility: To participate, institutions must be nonprofit and serve meals on a regular basis. They may be either public institutions or nonprofit private institutions. Interested institutions may apply for participation to their State's distributing agency, which determines eligibility based on standards set by USDA.

Benefits: Throughout the year, USDA acquires a variety of foods through its programs designed to stabilize farm prices. This food is processed, packaged, and transported to designated locations within each state.

Charitable institutions generally receive butter, cereal and grain products, rice, rolled wheat and oats, bulgur, macaroni and spaghetti, peanut and oil products, and

■ **Food Program Fact**

In 1993, charitable institutions distributed more than \$85.9 million worth of food. Soup kitchens and food banks distributed more than \$34 million worth of food.

vegetable oil and shortening. Other foods, including meats, fruits, and vegetables, may become available when surpluses exist.

For soup kitchens and food banks, the commodities generally available include canned and frozen meats, nonfat dry milk, and canned fruits and vegetables.

Funding: The appropriation for soup kitchens and food banks for FY 1994 is \$40 million. Additional foods may be provided out of agricultural surpluses as they become available.

There is no appropriation for charitable institutions, which receive donations of available surplus commodities.

The Nutrition Assistance Programs in Puerto Rico and the Commonwealth of the Northern Mariana Islands

The Nutrition Assistance Program (NAP) for Puerto Rico provides a block grant to the Commonwealth to give cash to the needy for the purchase of food. The grant can also be used to fund up to 50 percent of Puerto Rico's administrative expenses, or to fund special projects related to food production and distribution.

The program for the Commonwealth of the Northern Mariana Islands (CNMI) provides annual block grant funds for food assistance to the needy. The Northern Marianas program uses food coupons, similar to Food Stamps used in the 50 States.

Eligibility: Puerto Rico and the CNMI determine eligibility and allotments for their programs based on household size, income, assets, and other factors.

Benefits: The NAP in Puerto Rico served an average of 1.44 million people in FY 1993. Average monthly benefits were \$57.26.

The NAP in the Commonwealth of the Northern Mariana Islands served an average of 2,880 people each month in FY 1993. Average benefits were \$71.56 per month.

Funding: The total appropriation for the NAP in Puerto Rico for FY 1994 is \$1.091 billion. The total appropriation for the Northern Marianas is \$3.7 million, which has remained unchanged since the program began in 1982.

Food Program Fact

The Puerto Rico Department of Social Services, which administers NAP, also administers a secondary program called the Special Wage Incentive Program. Participating employers hire NAP recipients and train them to hold jobs in their firms. For the first 5 months, recipients continue to receive their full NAP benefit. Beginning in the sixth month, NAP benefits are recalculated in light of the wage which the recipient earns from the employer.

The Commonwealth of the Northern Mariana Islands prints its own coupons in two varieties. One may be used to buy any eligible foods; the other, which makes up 25 percent of each recipient's allotment, may be used only to buy foods manufactured in the commonwealth. This is done to bolster the local economy by encouraging consumption of domestic foods.

How To Apply for FNS Food Programs

Those wishing to apply for any of the 15 food assistance programs that FNS operates must do so through the appropriate State or local agency, since the programs are administered at the State and local levels by various public and private organizations. In general, applicants for the three largest programs should contact their local agencies as follows:

- **Food Stamp Program:** State welfare agency
- **School Lunch or School Breakfast Program** (free and reduced price meals):
Neighborhood school or local school authority
- **WIC Program:** State or local public health office

For programs not listed above, State and local welfare agencies, health departments, or education agencies should be able to provide information about what programs are available and how and where to apply.

For More Information About USDA Food Assistance Programs

For more information about any of the programs listed above, contact: U.S. Department of Agriculture, Food and Nutrition Service, Public Information Staff, Room 819, 3101 Park Center Drive, Alexandria, VA 22302-1594, or telephone (703) 305-2286.

Food Assistance in Response to Disasters

USDA's Food and Nutrition Service (FNS) is the primary agency responsible for providing Federal food assistance in response to disasters. FNS provides Federal food assistance through two programs: (1) the USDA Food Distribution Program and (2) the Disaster Food Stamp Program.

USDA Food Distribution Program (Donated Foods)

FNS can provide USDA donated food assistance through State distributing agencies. Upon request from the State, FNS is responsible for procuring food and transporting it to designated staging areas in each affected State. The State distributing agencies are responsible for receiving, allocating, and distributing the food to preparation or distribution sites. The American Red Cross, or other disaster relief agency, is responsible for receiving, preparing, and serving food in mass care facilities. FNS staff work with the State agency to determine what USDA food stocks are available in inventory in the State, for example in local schools and State warehouses that are near the affected disaster area and that can be used to meet the needs of the affected population.

In addition to making foods available for congregate meal service, the State agency may request federally donated commodities for distribution to affected households, if it is determined that commercial channels of trade are closed.

Disaster Food Stamp Program

When the commercial channels of trade are still operable or have been restored, the Governor may request of the Secretary of Agriculture the authority to implement the disaster provisions of the Food Stamp Act.

FNS notifies the State of its decision on the disaster request. If approval is granted, FNS provides on-site guidance for establishing and operating the Disaster Food Stamp Program. FNS ensures that an adequate supply of Food Stamp coupons is available. State and local welfare agencies are responsible for determining the eligibility of households to receive disaster Food Stamps and for issuing the benefits.

8. Natural Resources and Environment

The public depends on the country's natural resources for food, shelter, clothing, energy, recreation, and clean air and water. USDA programs, research, and technical assistance focus on conserving and managing our natural resources, and we are doing this more and more within an "ecosystem framework" geared to sustain these resources for future generations. That means we consider linkages among people, plants, animals, soil, water, and air so that our actions benefit the complete ecosystems and the entire country.

■ Forest Service Overview

Of the 1.6 billion acres of forest and rangeland in the United States, the Forest Service manages 191.6 million acres. This is 8.3 percent of the United States, an area about the size of Texas plus 10 percent. This land is divided into 155 national forests (187.2 million acres), 20 national grasslands (3.9 million acres), and 103 purchase units and other areas (474,000 acres). Congress has set aside 34.6 million acres of national forest and grassland—an area the size of Alabama—as wilderness. Other portions of the national forests and grasslands have been designated as national monument areas (3.3 million acres), national recreation areas (2.4 million acres), national game refuges and wildlife preserves (1.2 million acres), national wild and scenic rivers (487,000 acres), national primitive areas (174,000 acres), national volcanic monument areas (137,000), national scenic-research areas (6,600 acres), and national historic areas (6,500 acres).

Of the 736.7 million acres of forest (not including rangeland) in the United States, the Forest Service manages more than all other Federal agencies combined:

Forest owner/manager:

	<i>Million Acres</i>
Federal Government	249.1
Forest Service	139.9
Bureau of Land Management	36.6
National Park Service and others	72.6
Non-Federal Government	487.5
State	54.7
County, municipal, and private.	432.8

The Forest Service provides leadership in the management, protection, and use of the Nation's forests and rangelands. The agency is dedicated to multiple-use management of these lands for sustained yields of renewable resources such as wood, water, forage, wildlife, and recreation. Within this framework, the Forest Service

seeks to promote diverse, healthy, and sustainable ecosystems by restoring and sustaining the integrity of soil, air, water, biological diversity, and ecological processes.

Through a policy of ecosystem management, the agency strives to bring people into balance with the land, meeting the resource needs of communities, regions, and the Nation as well as those of generations to come.

In accordance with the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA), the Forest Service's RPA Strategic Plan of 1990 emphasizes four themes: (1) enhancing recreation, wildlife, and fisheries, (2) producing environmentally acceptable commodities, (3) improving scientific knowledge about natural resources, and (4) responding to global resource issues.

■ **Forest Service Mission**

The Forest Service carries out its mission by (1) managing the national forests and grasslands (collectively known as the National Forest System, or NFS), (2) advising and assisting State and private foresters, (3) conducting research in forestry, forest resources, and forest product utilization, and (4) supporting resource conservation and sustainable development abroad.

In FY 1992, funding amounted to \$2,887 million for the NFS, \$173 million for State and private forestry, \$207 million for forest research, and \$10 million for international forestry. In each area, Forest Service programs emphasize the value of all forest resources and the need to manage lands holistically instead of exploiting individual resources. This ecological approach promotes diverse and productive habitats for fish and wildlife while providing recreation opportunities, forest products, clean air and water, and a long-term ecosystem sustainability that benefits both the land and the people living on it. Every national forest has at least one project designed to demonstrate the principles of ecosystem management.

■ **Management of the National Forest System**

The Forest Service follows these ecological principles in managing the lands, wildlife and fisheries, recreational facilities, forest and rangeland, watersheds and air, and minerals and energy on the 191-million-acre NFS.

Lands

The Forest Service's lands program identifies NFS boundaries, acquires new land for the NFS, and secures public access to NFS lands. In FY 1992, the Forest Service purchased 156,592 acres of new land and exchanged 38,574 acres of NFS land for 69,102 acres of non-Federal land. Much of this land lay in wilderness areas, national recreation areas, wild and scenic river corridors, and other congressionally designated areas. Other tracts were acquired to protect critical wetlands, riparian areas, and habitat for threatened and endangered species.

Virtually all activities on the NFS depend on the Forest Development Road System, with its 369,000 miles of road and 8,000 bridges. During FY 1992, 25 per-

cent of the road system was designed for use by passenger cars; 57 percent was intended for use by high-clearance vehicles such as pickup trucks; and 18 percent was closed to motorized traffic in order to protect wildlife habitat.

Wildlife, Fish, and Rare Plants

The NFS provides diverse habitats—including more than 80,000 miles of streams and nearly 2 million acres of lakes—for more than 3,000 species of fish, birds, mammals, reptiles, and amphibians, as well as for more than 3,000 rare plant species. Of 728 species Federally listed as threatened or endangered, 243 species (33 percent) are found on NFS lands. Forest Service activities are designed to enhance fish and wildlife habitat and to protect threatened, endangered, and sensitive species.

In managing habitat, the Forest Service cooperates with 44 State fish and wildlife agencies and with 49 other Federal agencies and conservation groups. In FY 1992, through its Wildlife Challenge Cost-Share program, the Forest Service turned \$11.5 million of Federal funding into \$26.7 million worth of habitat improvements in 2,111 projects on 242,761 acres.

Conservation projects carried out by the Forest Service include developing spawning beds for fish, stabilizing stream channels, making potholes for waterfowl, developing new fishing lakes, and conducting prescribed burning. Major habitat management efforts are currently under way for several salmon species and for the black-footed ferret, Mexican spotted owl, northern goshawk, northern spotted owl, red-cockaded woodpecker, smooth purple coneflower, and (in conjunction with other agencies) the California spotted owl and grizzly bear.

Recreation

The Forest Service provides more recreation area than any other Federal agency, and twice as much as the National Parks. The national forest trail system is the largest in the Nation, with more than 120,000 miles of trails for hiking, riding, and cross-country skiing. Visitors to the NFS are attracted by 5,993 campgrounds and picnic areas, 323 swimming developments, 1,216 boating sites, and 250 winter sports sites. If all these sites were fully occupied at the same time, they would accommodate 1.8 million people. In FY 1992, the NFS hosted more than 691 million visitors for a total of 288 million visitor days (a visitor day is 12 hours of recreation use), including 49.1 million activity days of recreational fishing and 26 million activity days of sport hunting.

But the nature of recreation is changing. Providing fishing and hunting opportunities along with camping, hiking, boating, swimming, and skiing facilities is no longer enough. The public wants educational opportunities, interpretation of natural and cultural resources, special areas to learn about the environment, and, most importantly, involvement in caring for the land. The visitors themselves are also changing to include more senior citizens, Americans with disabilities, and people of diverse ethnic backgrounds.

The Forest Service maintains more than 50 large information centers with more than 6 million visitors annually. Interpretive programs designed to improve access to and understanding of cultural resources include "Windows on the Past" programs, in which over 2 million visitors participated in FY 1992. In cooperation with other

Federal agencies, the Forest Service evaluates recreational facilities to identify and remove accessibility barriers for the elderly and those with disabilities. In FY 1992, through its volunteer recruitment and Challenge Cost-Share programs, the Forest Service elicited more than \$67.5 million of partner contributions to NFS recreational programs and facilities.

Forests and Timber

Forest management on the NFS includes reforestation, care of forest vegetation, inventory of forest reserves, and timber harvest in a manner that ensures environmental quality and meets a variety of forest plan objectives for wood products, wildlife habitat, water quality, and recreational settings. In FY 1992, the Forest Service reforested 492,000 acres with over 50 different species of trees (partly to restore lands devastated by severe fires from 1987 to 1989). Over one million understocked acres remained in need of reforestation, a decrease of 46,000 acres from 1991.

Less than half of the NFS's 191 million acres produces crops of industrial wood. These commercial forests contain 47 percent of the Nation's standing softwood sawtimber inventory. In FY 1987 (the last year for which data were available), the NFS provided 13 percent of the total wood volume harvested in the United States. The NFS's commercial forests help furnish the Nation with paper products and with the lumber and plywood needed for housing and industrial uses.

Timber management involves preparing sales by selecting the means of harvest appropriate for the particular soil conditions involved and taking the measures necessary to protect the environment. In FY 1992, the Forest Service sold 4.5 billion board feet of timber and harvested 7.2 billion board feet (some had been sold in previous years). Timber sale revenues (\$1.077 billion) continued to exceed program costs (\$821.9 million). Clearcuts decreased by 13 percent from the previous fiscal year as the Forest Service continues to shift to other regeneration methods.

Rangeland

The Forest Service manages over 97 million acres of rangeland in 33 States. Healthy rangeland provides livestock forage, stable soils, quality wildlife habitat, and clean and abundant water. The Forest Service's rangeland management program reflects an ecological approach emphasizing restoration of rangelands, their long-term health, and meaningful participation in maintaining them by the people who share them.

In FY 1992, the Forest Service administered 9,940 paid permits for 9.4 million animal unit months of grazing by cattle, horses, sheep, and goats. In addition, over 3,000 wild horses and burros grazed on NFS lands. In coordination with permittees, volunteers, and other agencies, the Forest Service treated 36,475 acres for noxious weeds, made 4,157 structural improvements such as fences and water developments, and made other improvements such as seeding, prescribed burning, and mechanical treatments on 108,311 acres of NFS rangeland. Funded in FY 1992 at \$48 million, the Forest Service's rangeland management program returned \$10.8 billion from grazing fees.

Watersheds and Air

Much of the Nation's water supply flows from NFS lands. Through its watershed management programs, the Forest Service prevents soil loss or damage and protects water quality from the effects of roadbuilding and other land-disturbing activities. The agency also rehabilitates abandoned minelands and other abused areas and secures water needed for NFS activities. In FY 1992, improvement projects were completed on 36,201 acres of the NFS. In addition, over 36,500 acres were treated with emergency measures to prevent the loss of life, property, and other important downstream values as a result of wildfire.

In cooperation with the Environmental Protection Agency (EPA), the Forest Service monitors air quality at over 55 visibility monitoring sites. The agency works with the EPA, the States, and interested parties to address regional air quality concerns.

Minerals and Energy

Exploration, development, and production of energy and mineral resources on the NFS provide employment, raise revenues for the U.S. Treasury, and contribute to the growth and security of the Nation. The Forest Service's mineral and geology management program is designed to maximize these benefits while ensuring that appropriate protection is given to the environment and other resource values, and that the land is restored. During FY 1992, about 9 million acres of the NFS were under lease for oil, gas, coal, geothermal energy, and other leasable minerals. In addition, there were about 7,000 active mine sites on the NSF for gold, silver, copper, zinc, and other locatable minerals, and over 1,000 pits and quarries for extracting sand, gravel, stone, and other mineral materials. Funded in FY 1992 at \$34.3 million, the minerals and geology management program generated \$169.9 million in receipts.

■ Assistance to State and Private Foresters

The Forest Service is committed to the sound management, protection, and use of the more than 600 million acres of forest in the United States that are beyond the boundaries of the NFS. The agency cooperates with State foresters, other State and Federal agencies, county and municipal officials, nongovernmental organizations, and private industry in multiresource management and stewardship, forest health and protection, rural community assistance, urban and community forestry, and natural resource conservation education.

Multiresource Management and Stewardship

Nonindustrial private landowners provide 51 percent of the Nation's current timber supply and hold 57 percent of the Nation's timberlands (28 percent is publicly owned and 15 percent is owned by the forest industry), including marginal and environmentally sensitive agricultural lands that could be reforested to meet growing demand for timber and to sequester carbon dioxide to combat global climate change. Through its Forest Stewardship Program, the Forest Service provides technical assistance to landowners to encourage the long-term multiple-use management of nonin-

dustrial private forest land. The Forest Service shares the costs of implementing stewardship practices such as timber production, forest protection, soil and water conservation, wildlife habitat improvement, and forest recreation enhancement.

As of FY 1992, a total of 43,998 stewardship plans encompassing 3,672,305 acres nationwide had been developed. As part of the Stewardship Incentive Program, the Forest Service planted 46.8 million trees in FY 1992. Under the Forestry Incentives and Agriculture Conservation Programs, trees were planted on 146,031 acres and on 102,853 acres, respectively, and timber stand improvement was conducted under the two programs on 27,622 acres and 29,988 acres, respectively.

Through its Tree Improvement Program, the Forest Service provides technical and financial assistance to State forestry programs to benefit nonindustrial private landowners. The program helps improve forest productivity by producing high-quality, genetically improved tree seed. In FY 1992, about 1.3 billion tree seedlings were planted, about half on 1 million acres of State, local government, and nonindustrial private lands, including eroding land retired from crop production.

The Forest Service also provides specialized assistance to loggers and wood processors through programs that promote better wood utilization and that develop energy from renewable resources, thereby reducing the amount of timber needed for consumer goods. In coordination with the Soil Conservation Service and State agencies, the Forest Service provides expertise, information, and technical assistance to landowners in watershed improvement and flood prevention projects.

Forest Health and Protection

The Forest Service is committed to preserving the health of the Nation's forests and protecting them from wildfire through its forest pest management and cooperative fire protection programs.

Forest Pest Management

The Forest Service provides protection from insects and diseases on all Federal and non-Federal forest lands. In cooperation with other Federal agencies, the Forest Service is developing biological methods of controlling forest pests, including releasing pest predators and parasites and using behavioral chemicals such as sex attractants to control pest populations. Biological controls are often less expensive, longer lasting, and safer for the environment than traditional pest control methods based on chemical pesticides.

In FY 1992, forest pest management expenditures were \$69 million (\$52 million in Federal funds and \$17 million in State and other funds). Federal funds supported all program and suppression activities on Federal lands plus 34 percent of program activities and 57 percent of suppression activities on State and private lands. Nationwide, about 1.7 million acres of forest were treated for pests.

Fire Management

In FY 1992, the Forest Service fought 11,228 fires on 530,000 acres of the NFS, and provided fire-fighting assistance to States and other Federal agencies. The Forest Service cooperates with State and local agencies in preventing wildfires by managing fuels and by relating information to county planners, developers, architects, landscape designers, and insurance companies. The agency recognizes that fire is a fundamental ecological process and plays a vital role in sustaining healthy, productive conditions in fire-adapted ecosystems throughout the United States. The agency is incorporating fire ecology principles into its fire management plans.

Rural Community Assistance

In cooperation with the USDA Rural Development Administration and State rural development councils, the Forest Service helps rural communities expand and diversify their economies through the wise use of natural resources. In pursuing rural development, the Forest Service and its partners

- promote community-led efforts that include the entire community (not just the business sector);
- take a comprehensive, cooperative approach;
- act strategically to address local needs;
- invest for the long term, shunning quick-fix approaches;
- address diverse problems, conditions, and situations in a flexible manner;
- create partnerships to meet community needs;
- emphasize wise use of natural resources to achieve community goals;
- strengthen communities through economic diversification;
- sustain a balance between economic development and environmental concerns; and
- stress technical over financial assistance.

In addition to working with other agencies, the Forest Service has implemented its own rural development projects, including the promotion of new tourism, the expansion of recreational facilities, the exploitation of new timber bridge technologies, and the construction of new value-added wood processing facilities.

Urban and Community Forestry

In cooperation with municipal authorities and State forestry agencies, the Forest Service plants and cares for trees, shrubs, and other vegetation in cities, towns, and communities nationwide. The urban and community forestry program is designed to improve the soil, water, and air in urban areas and to enhance the well-being of those who live there. In FY 1992, technical and financial assistance was provided to almost 14,000 communities across the United States. In addition, the Forest Service supported efforts to study urban forests and to document their costs and benefits.

■ Natural Resource Conservation Education

The Forest Service's resource conservation education programs are designed to promote the understanding of natural resources and ecosystems as well as their use, management, conservation, interrelationships, and values to society. In FY 1992, in cooperation with schools, private industry, and local, State, and Federal agencies, the Forest Service sponsored over 150 educational projects nationwide with names such as Project Learning Tree, Investigating Your Environment, and Urban Treehouse. Two well-established educational programs, Smokey Bear and Woodsy Owl, are specifically designed to promote outdoor fire safety and prevent pollution.

Smokey Bear

In 1994, Smokey Bear celebrates 50 years of forest fire prevention. The Forest Service began a forest fire prevention program during World War II, and in 1944, a bear was introduced as the program symbol. "Smokey says—Care WILL prevent 9 out of 10 forest fires!" announced the first poster. In 1950, a bear cub survived a New Mexico forest fire. Nursed back to health by the Forest Service, he came to live in the National Zoo in Washington, DC, as the living fire prevention symbol.

Woodsy Owl

Woodsy Owl is a fanciful, colorful, wise owl designed to appeal especially to young children. Woodsy and his slogan, "Give a hoot. Don't pollute," are recognized in more than 90 percent of households with children under 10. The Woodsy Owl campaign was launched by the Forest Service in 1971. Woodsy warns against litter and vandalism as well as air, water, and noise pollution.

■ Research

The Forest Service operates a forestry research program of unparalleled size and scope. The program is designed to protect the Nation's natural resources on all 1.6 billion acres of its forests and rangelands while gaining maximum benefit from their use and minimizing the effects of human intervention on the environment. The principal areas of Forest Service research are forest protection, resource analysis, forest management, forest environment, and forest products and harvesting.

Forest Protection

Forest protection research develops improved methods of preventing, predicting, controlling, and reducing the damage caused by pests and wildfires. Research on forest-atmosphere interactions is used to monitor and predict global change effects on forests and pest dynamics caused by climate, air pollutants, and other changing atmospheric factors. The program focuses on learning more about the beneficial functions and uses of fire, insects, and micro-organisms, and the ways in which they are needed to maintain healthy, productive forest and rangeland ecosystems.

Resource Analysis

Resource analysis research provides a scientific basis for assessing the current and future condition of forest resources as well as forest product markets and investments, both foreign and domestic. It also develops methods for improving management of recreation, wilderness, and urban forest resources.

Forest Management

Forest management research is designed to improve forest health, quality, and productivity by developing forest management practices that are biologically, economically, and environmentally sound. Research is directed toward understanding the physical, genetic, and biological factors that control the development of individual trees, forest stands, and natural ecosystems. Emphasis is placed on science that maintains and promotes biological diversity.

Forest Environment

Forest environment research provides leadership for developing the knowledge, techniques, and strategies needed to manage, protect, and enhance forest, rangeland, and associated aquatic ecosystems. Emphasis is placed on sustaining biological diversity, ecological processes, and water, fish, and wildlife resources.

Forest Products and Harvesting

Forest products and harvesting research provides the science and technology needed to produce, harvest, and use wood products in ways that are safe, efficient, and environmentally beneficial. Research concentrates on obtaining the optimum yield from harvested forest resources through environmentally acceptable processing systems and through an enhanced understanding of resources.

■ International Forestry

Responsibility for global stewardship is shared by the entire Forest Service. The NFS sets an example of ecologically sound, sustainable management; the State and Private Forestry Program shares resource management experience with others in the world; and the Research Program conducts studies with implications for global forest management.

In addition to these efforts, the Forest Service has identified overseas areas containing forest ecosystems of vital global importance. The agency implements programs designed to support sustainable forest management, in coordination with foreign governments and other Federal agencies.

Two major forest ecosystems, the Amazon Basin and the humid tropical forest area shared by Belize, Guatemala, and Mexico, have been identified as focus areas. Primary Forest Service program objectives in these regions are (1) protection and conservation of forest resources, (2) increased understanding of forest ecosystems, and (3) sustainable management of forests for the benefit of the people living there.

■ Human Resource Programs

The Forest Service's Human Resources Programs carry out high-priority conservation work while providing job opportunities and training to youths, the elderly, people with disabilities, and the unemployed, underemployed, and economically disadvantaged. Programs include the Job Corps, Senior Community Service Employment Program, Volunteers in the National Forests, and Youth Conservation Corps.

In FY 1992, these programs offered employment and skills training to 142,468 persons; for an investment of \$91.5 million, a value of \$126.3 million was returned. The participants fought fires, planted trees, improved timber stands, provided clerical support, and constructed roads, trails, fences, campgrounds, warehouses, and office buildings.

■ A Productive Nation in Harmony with a Quality Environment—Soil Conservation Service Overview

As USDA's lead agency for conservation technical assistance, the Soil Conservation Service (SCS) works closely with other USDA agencies involved in conservation priorities, including the Agricultural Stabilization and Conservation Service, Agricultural Research Service, Extension Service, and others. Through these agencies, USDA administers a wide range of programs to address this country's natural resource problems as they affect private lands in agricultural and other uses.

We know that our well being depends on healthy, productive, and diverse ecosystems and their sustainable use. Just as soil, water, and habitat are interrelated, the programs that address these resources are interrelated, and programs that help one resource also benefit others. If you stop erosion, for example, you also enhance soil productivity and protect water and air quality. Improving the environment can enhance the economic future of communities throughout the United States.

■ Soils

Soil Erosion

More than 3 billion tons of soil are eroded from the Nation's cropland each year, according to SCS estimates.

In many areas, the rate of erosion seriously threatens long-term agricultural productivity. According to the 1987 National Resources Inventory, of the 423 million acres of cropland, 171 million acres (40 percent) are eroding at greater than tolerable rates. About 27 million acres (6 percent) of the Nation's cropland are eroding at rates exceeding five times the tolerable level.

Sediment, the greatest single water pollutant by volume, is an end product of soil erosion.

Assistance Available

Fortunately for the future of America's farmland, many practical systems are available for controlling soil erosion. More than 2 million land users have signed up with local conservation districts to apply conservation measures on their farms and ranches.

Technical help comes from SCS, cost-sharing from SCS and ASCS, and educational programs from the Cooperative Extension System (CES).

Among the most successful techniques for erosion control are various forms of conservation tillage, which leave residue from a previous crop on the field. The ultimate conservation tillage system is no-till. This system leaves virtually all of the previous crop residue mulch on the soil surface on a year-round basis. No-till farming can reduce erosion to negligible rates.

The National Association of Conservation Districts' Conservation Technology Information Center in West Lafayette, IN, encourages greater use of conservation tillage on American farms. USDA, the agribusiness sector, and other organizations help the center with its work.

During FY 1993, SCS provided direct technical services to 1,227,000 land users and units of government. As a result of these services, 563,000 land users applied one or more conservation practices. SCS provided assistance with conservation plans on more than 16 million acres of land.

SCS gives technical assistance to farmers, ranchers, other individuals and groups, and local and State governments—to help them reduce erosion and sedimentation, conserve water, improve water quality, reduce energy requirements, and plan better land and water uses. The agency provides help largely through some 3,000 local conservation districts that are organized under State law by local people.

SCS provides technical and financial assistance to sponsoring groups in planning and installing small watershed protection projects under Public Law 83-566 and related acts. The agency also participates in various river basin surveys and investigations, provides flood hazard information for communities, and helps in post-flood restoration work on streams and rivers.

SCS is the lead USDA agency for the National Cooperative Soil Survey; the Resource Conservation and Development Program; and the Great Plains Conservation Program (which provides long-term financing and conservation assistance in parts of 10 States). It also takes the lead in conducting snow surveys, in cooperation with other Federal, State, and private agencies involved in water supply forecasting in the West.

SCS assists schools in planning and building outdoor conservation classrooms and helps environmental and wildlife groups with natural resource projects. SCS also finds new strains—or adapts existing strains—of grasses, legumes, shrubs, and trees for a wide range of conservation uses. These uses include increased protection and production of pasture and range, windbreaks, wildlife food and cover, protection of stream banks and shorelines, highway rights-of-way, and reclamation of surface-mined land and abandoned mines.

Conservation Provisions of the 1985 Food Security Act

The Nation's farmers and ranchers were given new incentives for preserving and protecting agricultural resources under the 1985 Food Security Act (FSA). Key provisions deal with long-term protection of highly erodible land, preservation of wetlands, improvement of water quality, and enhancement of wildlife habitat.

The FSA for the first time linked a farmer's conservation activities to eligibility for Federal farm program benefits. Three key provisions of the act dealt with highly erodible land, wetlands conservation, and the Conservation Reserve Program.

SCS is responsible for identifying highly erodible land, wetlands, and converted wetlands.

Producers who farm highly erodible land without an approved conservation plan will be considered ineligible for USDA program benefits. To maintain eligibility under the 1985 law, a producer should have been actively applying an approved conservation plan on highly erodible cropland by January 1, 1990, and must have the plan fully implemented by December 31, 1994.

As of January 1, 1994, conservation plans were completed on about 1.6 million tracts.

A farmer must implement a conservation plan approved by the local conservation district. Planning and technical assistance are provided by USDA, State forestry agencies, and local conservation districts. The Cooperative Extension System provides educational programs, and, with SCS, assists farmers in preparing conservation plans.

The Food, Agriculture, Conservation, and Trade Act of 1990

The Food, Agriculture, Conservation, and Trade Act of 1990 (FACTA) set up a new Integrated Farm Management Program. Under this program, farmers who contract to develop and carry out an approved farm management plan to promote the use of soil-conserving crops and rotations on a portion of their crop base will not lose commodity crop acreage base. Adoption of resource-conserving crop rotations will help prevent soil degradation, improve soil conditions, and protect water quality.

FACTA also amended the FSA wetland conservation provisions. Farmers who convert wetlands after November 28, 1990, to make agricultural commodity production possible may lose eligibility for USDA farm program benefits, even if no crop is planted. Graduated payment reductions for unintentional violations apply retroactively to December 23, 1985. Future USDA program benefits can be regained by restoring the converted wetland to its original wetland characteristics.

FACTA reinforced and expanded many of the other conservation provisions begun in the 1985 farm bill. The provisions continue to make the goals of USDA's commodity and conservation programs consistent and to encourage the reduction of soil erosion and the retention of wetlands.

Conservation Reserve Program

The major component of a new Environmental Conservation Acreage Reserve Program, part of the FACTA, is the revised Conservation Reserve Program. The CRP, first established under the 1985 law, encourages producers to establish permanent

vegetative cover for land that is highly erodible or contributing to a serious water quality problem.

Beginning in 1991, the CRP put greater emphasis on preserving and upgrading water quality, identifying environmentally sensitive areas for special conservation treatment, and planting trees.

SCS has provided technical assistance to nearly 375,000 farmers who have entered into 10-year CRP contracts with the Secretary of Agriculture. Under these contracts, farmers will convert 36.5 million acres of highly erodible cropland to grass, trees, or wildlife habitat covers. The goal is to enroll 40 to 45 million acres by 1995.

New to the program are incentives to encourage the planting of hardwood trees, windbreaks, shelterbelts, and wildlife areas, and to protect a farmer's base crop after the contract expires. Land eligibility has been extended to include cropland that contributes to water quality degradation. Land areas where producers use practices such as grass waterways, contour strips, and filter strips are eligible for enrollment.

Establishment of cover on land now included under CRP contracts will enhance water quality, improve habitat, and reduce the estimated annual rate of erosion from these lands by 19 tons per acre.

■ Water

Enhancing The Nation's Water Quality

A number of SCS conservation programs help improve water quality, including the highly erodible land conservation program, the Conservation Reserve Program, and the Agricultural Conservation Program. USDA pulled many of these together in the Water Quality Initiative, begun in 1990.

A coordinated effort to protect the Nation's water from contamination by agricultural chemicals, the Water Quality Initiative's objective is to provide farmers, ranchers, and foresters the knowledge and technical means to respond independently and voluntarily in addressing on-farm environmental concerns and related State water quality requirements.

The initiative's primary focus is to minimize the risk of pesticides and fertilizers leaching into ground water or being carried by surface or subsurface runoff to surface streams.

Eleven USDA agencies, in coordination with the U.S. Geological Survey and the Environmental Protection Agency, have devised a three-part approach:

1. Education and Technical Assistance.

SCS, ES (in conjunction with State Cooperative Extension Systems), and ASCS lead an effort to inform farmers about the causes of water contamination and methods for minimizing the risk of contamination. Minimizing risk can best be addressed by improved management of pesticides and fertilizers, in crop production as well as in handling and storage in the farmstead area. Well construction and operation, septic systems, and animal feeding and loafing areas are important farmstead factors.

In addition to maintaining offices in nearly 2,500 counties to provide technical assistance, educational services, and financial assistance to farmers, the three agencies conduct several field programs across the country:

■ **Demonstration Projects.** Sixteen projects demonstrate the treatment of specific nonpoint source pollution problems with traditional and innovative practices.

■ **Hydrologic Unit Areas.** In selected agricultural watersheds or aquifer-recharge areas, USDA personnel provide conservation planning and technical and financial assistance to help farmers and ranchers meet State water quality goals without undue economic hardship by solving agricultural nonpoint source pollution problems. States play an important role in identifying the problem watersheds, one of their responsibilities under section 319 of the Water Quality Act of 1987. Whole-basin treatment planning for a given watershed is a coordinated effort by Federal, State, and local agencies, and includes public involvement.

■ **Regional Multi-State Quality Projects.** These projects are accelerating agricultural and technical assistance to meet regional water quality concerns that require coordination among several States and involvement among several agencies. In the 21 Estuaries of National Significance, SCS, EPA, National Oceanic and Atmospheric Administration, and State Land Grant Institutions provide education and technical assistance to reduce agricultural impacts on national estuaries. In the Chesapeake Bay, nutrient management plans have reduced annual nitrogen use by 1,904 tons and phosphorus use by 2,145 tons.

Over the last 10 years, SCS staff in the six States in the Chesapeake Bay watershed provided technical assistance to about 50,000 land users annually. The executive Council of the Chesapeake Bay Program and Assistant Secretary of Agriculture James Lyons signed an agreement to form closer ties and to increase USDA's role in the Bay program.

■ **Farm-A-Syst.** This new program, which helps prevent water pollution in rural America, offers voluntary assessment of pollution risks at a particular farmstead or rural residence. It helps residents learn more about water pollution risks and develop action plans to reduce risks. Now located in almost every State, the program allows local water quality staff to adapt the prototype materials to local standards and regulations. It also paves the way to better coordination between State and local agencies affiliated with ground water protection and helps forge new links with non-profit organizations and private businesses. Most importantly, it helps bring ground water protection to the level where it should be: right at home.

2. Research and Development.

The ARS, CSRS, ERS, and State Agricultural Experiment Stations conduct a coordinated research program consisting of projects at Federal and State facilities in every State. The projects provide information about interactions among soils, plants, water, and agricultural chemicals. This information is used in developing new approaches to crop production and use of agricultural chemicals. New management systems are evaluated at several locations in the Corn Belt.

3. Database Development and Evaluation.

ERS and NASS conduct research to find out about chemical use on the farm. There are two programs:

■ **Chemical Use Survey.** In States that supply significant amounts of a given commodity, USDA conducts surveys to estimate agrichemical use in the production of that commodity. Commodities included in these studies are corn, soybeans, wheat, cotton, rice, potatoes, the major vegetables, and the major fruits and nuts.

■ **Area Studies.** Certain specific areas or regions are studied more intensively to discover relationships among fertilizer and pesticide use, cropping practices, and related water quality effects. The Delmarva Peninsula on the east side of the Chesapeake Bay is the first study area because it is also a pilot area for the U.S. Geological Survey National Water Quality Assessment Program. The emphasis in these studies is on economic and sociological relationships, and results should be useful in finding ways to encourage producers to adopt practices that will enhance water quality.

Water Quality Incentive Program

In 1990, FACTA also set up a new Agricultural Water Quality Protection Program, now generally called the Water Quality Incentive Program. WQIP is a voluntary program that aims to enroll 10 million acres of farmland under agricultural water protection plans by the end of 1995. Incentive payments to producers promote the efficient use of crop nutrients and pesticides and ensure safe storage, mixing, and handling of agricultural chemicals and animal wastes.

■ Habitat

Wetlands Reserve Program (WRP)

The Food Security Act of 1985 (P.L. 99-198), as amended by the Food, Agriculture, Conservation, and Trade Act of 1990 (P.L. 101-624), authorized the Wetlands Reserve Program.

The Secretary of Agriculture purchases easements from willing owners of land that can be restored to a wetland. USDA also provides cost-share assistance to restore these wetlands. SCS, in cooperation with the Fish and Wildlife Service, determines land eligibility and prepares a Wetland Reserve Plan of Operation that will restore and protect the wetlands.

An enrollment goal of 1,000,000 acres by the end of 1995 was authorized by the Act. A 50,000-acre pilot program was authorized for 1992. WRP requires long-term easements with emphasis on perpetual easements. Producers submitted intentions to enroll 466,000 acres into the program in that first year. Nearly 50,000 acres have been accepted for enrollment. Congress appropriated \$66.6 million for FY 1994 to enroll up to 75,000 acres. Signup for WRP was conducted February 28 to March 11, 1994.

Restoration and protection of wetlands under the WRP offers many benefits to landowners. Wetlands have great value because they provide agricultural benefits, such as hay or grazing land in drought years; improve water quality by filtering sediments and chemicals; reduce flooding of streams and rivers; supply critical wildlife habitat; and furnish educational, scientific, recreational, and aesthetic benefits for people.

Wetland Conservation

The 1985 Farm Bill provisions on wetland conservation ("swampbuster") discourages the alteration of wetlands for agricultural purposes. Farmers who drain, dredge, fill, level, or otherwise alter wetlands to make possible the production of an agricultural commodity after November 28, 1990, or plant an agricultural commodity on a wetland that was converted after December 23, 1985, will lose eligibility for most USDA program benefits.

■ Great Plains Conservation Program

In 1956, Congress established the Great Plains Conservation Program (GPCP) to help stabilize the agriculture of this vast area. The region contains important grazing lands and cropland, including vast acreages of wheat. Located in 10 states (Colorado, Kansas, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, and Wyoming), the Great Plains is an area of light and fragile soils, relatively low rainfall, and periodic drought and dust storms.

The GPCP helps land users change their farm and ranch operations to mitigate natural hazards of the Great Plains, such as those related to climate, soil, topography, floods, and salinity. The changes include measures for erosion control, water conservation, and land use adjustment.

Under the program, a participating landowner or land operator (1) works out a conservation plan and schedule, (2) contracts with SCS to apply all the conservation work in 3-10 years, (3) gets technical help from SCS as needed, and (4) receives from the Federal Government a portion of the cost of conservation treatment as the landowner or operator completes it.

In 1993, 1,129 farmers and ranchers signed long-term contracts to apply conservation measures on more than 2.8 million acres.

The GPCP is coordinated with other Federal, State, and local governmental agencies. It is intended to be an addition to, and not a substitute for, other programs available in the Great Plains area. In the 1990 Farm Bill, Congress extended the GPCP to September 30, 2001.

■ **Additional USDA Conservation Programs**

Other USDA programs also provide benefits to soil, water, and habitat: The **Agricultural Conservation Program**, administered by the Agricultural Stabilization and Conservation Service, provides cost-share assistance to farmers and ranchers nationwide to voluntarily carry out measures to reduce soil erosion, solve water conservation and water quality problems, enhance forest resources, and treat other natural resource problems.

The program stresses solving local environmental problems. Local authority under the program is delegated to the county conservation review groups, composed of Federal and State agencies and other organizations interested in environmental concerns, to develop approved conservation practices that will solve resource problems and enhance the environment.

Consultants from SCS, NFS, Extension Service, and the private sector provide technical program guidance to ASCS committee members and technical assistance to farmers in carrying out conservation practices. If a conservation practice is approved, USDA will pay part of the cost of conservation work, while the farmer pays the balance. Special program provisions provide for an increased cost-share rate for low-income farmers.

The **Colorado River Salinity Control Program** provides financial and technical assistance to identify salt source areas in the Colorado River Basin; to install conservation practices to reduce salinity levels in the Colorado River; to carry out research, education, and demonstration activities; and to carry out monitoring and evaluation activities. Several USDA agencies cooperate in this effort.

The **Emergency Conservation Program**, managed through ASCS, provides emergency funds for sharing with farmers and ranchers the cost of emergency conservation measures needed to rehabilitate farmland damaged by floods, hurricanes, tornadoes, or other natural disasters, and for carrying out emergency water conservation measures during periods of severe drought. Subject to availability of funds, USDA implements the ECP for eligible farmers and ranchers when the damage is so costly to repair that Federal assistance is needed to return the land to productive agricultural use.

The **Water Bank Program**, operated by ASCS, is available to farmers or ranchers having specified types of wetlands along major migratory waterfowl flyways in designated counties. The program is designed to preserve and improve wildlife habitat; preserve and improve wetlands; conserve surface waters; reduce runoff, soil erosion, and stream sedimentation; contribute to flood control, better water quality, and improved subsurface moisture; and accomplish related conservation and environmental objectives.

Research is also helping to improve water quality by studying the basic causes of water contamination and by finding ways to better target pesticides, improve nitrogen management, dispose of pesticide containers and residues, and apply other protection measures. USDA is implementing a **Midwest Initiative** for water quality research to test existing and new farm practices for their efficacy in reducing the movement of pesticides and nitrate nitrogen to ground water. ARS will carry out this research in cooperation with several Midwestern State Agricultural Experiment Stations, with assistance provided by CSRS grants.

SCS administers watershed projects for USDA under Public Law 83-566, the **Watershed Protection and Flood Prevention** Act of 1954. These projects help urban and rural communities protect, improve, and develop the water and land resources of watersheds of up to 250,000 acres. Benefits include reduced erosion, siltation, and flooding; improved water quality; increased water supply; recharge of ground water reservoirs; and improved fish and wildlife resources.

9. Marketing and Inspection Services

The Marketing and Inspection mission area of USDA has responsibility for ensuring the quality, wholesomeness, and integrity of farm products; facilitating the sales, storage, and transportation aspects of the agricultural marketing system; assuring consumer confidence in agricultural products; protecting the safety of meat, poultry, and egg products; and safeguarding the health of animals and crops.

■ Food Safety

Meat and Poultry Inspection

The 1906 Federal Meat Inspection Act and the 1957 Poultry Products Inspection Act require all meat and poultry to be federally inspected. The Food Safety and Inspection Service (FSIS) is the USDA agency that inspects meat and poultry. More than 7,000 FSIS food inspectors and veterinarians carry out the inspection laws in some 6,400 privately owned meat and poultry plants around the country, ensuring that all domestically produced meat and poultry sold in interstate or foreign commerce is safe, wholesome, and accurately labeled.

Meat and poultry sold only within a State may be inspected under an FSIS-approved State inspection program equal to the Federal program. If a State is unable to operate its own inspection program, FSIS assumes responsibility for this inspection. Inspections are chiefly in meat and poultry packing and processing plants.

To ensure the wholesomeness of imported meat and poultry products, FSIS reviews and monitors foreign inspection systems to ensure that they are equal to the U.S. system. In addition, 86 import inspection personnel at 150 official import establishments reinspect statistically selected products. This is actually a second inspection, the first being by the country of origin.

In FY 1993, FSIS inspected almost 130 million meat animals, almost 7.0 billion birds, and millions of pounds of processed products, all domestically produced; in addition, it inspected 2.6 billion pounds of imported products.

FSIS uses laboratory testing increasingly to ensure the safety of meat and poultry products. In FY 1993, it performed about 2.1 million analyses on 453,000 samples of meat and poultry to determine the composition of products and to test for contaminants such as bacteria and chemical residues.

Meat and poultry that is unwholesome, adulterated, or mislabeled must be kept out of the food supply. Almost 99 percent of inspected products pass inspection. However, during FY 1993, FSIS inspectors condemned more than 63 million birds (0.9 percent of carcasses inspected). In 1993, FSIS import inspectors condemned over 10 million pounds of products intended for entry into the United States.

In 1993, FSIS implemented a law requiring safe handling labels on all raw meat and poultry. The FSIS label states that some food products may contain bacteria that

could cause illness if the product is mishandled or cooked improperly, and notes that raw meat and poultry should be refrigerated, or frozen and thawed in a refrigerator or microwave, kept separate from other foods and working surfaces, and cooked thoroughly, and that leftovers should be refrigerated immediately.

Labels on meat and poultry products must be approved by FSIS before they can be used by the industry. In FY 1993, FSIS reviewed over 145,000 labels.

The USDA inspection seal is not the agency's last step in protecting the public. Compliance officers monitor marketing channels to check for uninspected meat and poultry, inaccurate labels, and contaminated or spoiled products. They work with USDA's Office of Inspector General and other Federal and State enforcement authorities to seek appropriate criminal sanctions for violators of inspection laws.

Hazard Analysis and Critical Control Point (HACCP) System

Conceived by the national space program to solve problems in designing its first foods for astronauts, the HACCP system continues to be considered by scientists as one of the best methods that food processors can use to prevent problems.

One of its supporters, the National Advisory Committee on Microbiological Criteria for Foods—with members representing Federal and State regulatory agencies, the scientific community, the food industry, academe, and consumer interests—defines HACCP as a food production tool that assesses potential hazards; determines critical control points (CCPs); establishes requirements for each CCP; monitors procedures; and outlines corrective actions, record-keeping requirements, and steps to verify that the HACCP plan is working.

In May 1993, Secretary of Agriculture Mike Espy directed FSIS to develop a proposal requiring that meat and poultry plants operate under a HACCP system. FSIS and meat and poultry industries, along with employee and consumer groups, worked together to consider issues related to implementing a HACCP requirement in meat and poultry plants. They also explored the training needs of FSIS and industry employees.

HACCP will not replace inspection. Mandatory HACCP will improve public health protection because it will help prevent mistakes in processing that could jeopardize food safety. HACCP also enables processors to make corrections immediately, before products leave the plant.

Pathogen Reduction Initiatives

In 1993, FSIS designed a new, all-encompassing Pathogen Reduction Plan to better protect public health against microbial pathogens.

The Pathogen Reduction Program entails eight activities to reduce the likelihood of harmful microbes entering the food supply at key points in production, distribution, and preparation:

1. **“Preharvest” (before slaughter) production activities** facilitate research on prevention of disease and on animal identification systems to help trace diseased or contaminated animals to their sources.
2. **Development of rapid methods** entails identifying and implementing rapid tests to detect pathogens in the food production system.

3. **“Postharvest” (after slaughter) activities** include identifying microbiological baselines and designing interventions to reduce pathogens.
4. **Risk analysis** links pathogen reduction strategies to quantitative risk assessment.
5. **Slaughter plant activities** apply new microbial detection and reduction techniques to meat and poultry inspection as they become available.
6. **Processing plant applications** expand monitoring of control points for microbes and strengthen existing procedures that control bacterial proliferation.
7. **Food service and retail education** efforts provide current food safety information to food handlers and State enforcement agencies.
8. **Consumer awareness activities** inform consumers of the risks associated with unsafe food handling.

Rulemaking for the Pathogen Reduction Program has progressed rapidly. A new rule, effective September 2, 1993, sets cooking and handling requirements for cooked and partially cooked uncured meat patties. A USDA rule published August 12, 1993, gives FSIS greater authority in conducting and making awards for food safety research. In March 1993, USDA announced a final rule mandating safe cooking and handling labels for all not-ready-to-eat meat and poultry products, the rule authorizing the new labels mentioned above.

A USDA Pathogen Reduction Task Force, headed by the Assistant Secretary for Marketing and Inspection Services, is responsible for leadership, oversight, and coordination of USDA's efforts to reduce the occurrence of microbiological pathogens in meat and poultry products. Experience gained from USDA's projects in pathogen reduction will help determine future program changes. The task force has representatives from several USDA agencies as well as the Centers for Disease Control and Prevention, and the U.S. Food and Drug Administration.

Meat and Poultry Hotline

The Meat and Poultry Hotline, a service of FSIS, was launched in 1985 to respond to consumers' need for accurate answers to food safety and handling questions. The Hotline, in cooperation with other Government agencies, serves as an important link between the areas of nutrition, fitness, and food safety.

The Hotline's toll-free number—(800) 535-4555; (202) 720-3333 in the Washington, D.C., area—provides immediate help for consumers. Fifteen home economists, registered dietitians, and food technologists answer consumer food safety questions from 10 a.m. to 4 p.m. weekdays, with extended hours offered in November. These specialists answer questions on safe storage, handling, and preparation of meat and poultry products, emphasizing actions that will lower the risk of foodborne illness.

The Hotline also addresses the role of Government regulatory agencies in assuring food safety by responding to questions on labeling, food additives, meat inspection, and related issues.

In the course of answering consumers' food safety questions, the Hotline discusses the principles of good nutrition embodied in the *Dietary Guidelines for Americans* (which are the basis for all Federal nutrition education for healthy

Americans). Offering such information about nutrition complements the Hotline's food safety goals; it helps callers select meat and poultry products wisely, so that when safely prepared, the foods offer the fullest possible health benefits.

Many people calling the Hotline with nutrition questions also reveal potentially unsafe food practices. For example, while raw eggs added to shakes or blended juices do provide extra protein to the diet, they may also introduce *Salmonella enteritidis*, a foodborne pathogen that could make people sick. Thus, the Hotline cautions against eating undercooked or raw eggs, and, for similar reasons, cautions against eating raw or undercooked meat and poultry.

During FY 1993, issues of importance to Hotline callers included *E.coli* 0157:H7 and ground beef safety, implications of a University of Wisconsin study on cutting board safety, safe handling label or point-of-purchase instructions for raw meat and poultry products, product recalls, safe handling of holiday dinners, and the handling of flood-contaminated foods.

Other common concerns of callers include the fat and cholesterol content of meat and poultry products, the nutritional differences between cooking chicken with or without skin, and the nutritional benefits (if any) of eating raw, rather than cooked, meat.

With more food packages now carrying nutrition labels, the Hotline staff also helps consumers understand and use the information on the labels.

The Hotline tracks consumer queries, along with limited demographic information, using a computerized database. The typical Hotline user is a consumer calling on his or her own behalf (80 percent of callers are women), living in the Eastern United States, who learned of the Hotline through a newspaper or magazine. The typical caller has a fairly straightforward question, as opposed to a complaint, about safe storage, handling, or preparation of a perishable product. The caller is most likely to be concerned about chicken or turkey (although questions about beef, pork, and eggs are also common).

The Hotline supplements its live telephone service with automated, 24-hour access to recorded, frequently updated messages on a variety of food safety topics. During FY 1993, the Hotline received approximately 158,000 calls—the highest number since its inception.

Food Safety Education

The Meat and Poultry Hotline is a part of USDA's comprehensive food safety education program and is a valuable resource for consumers, government officials, business people, Extension agents, students, teachers, consumer activists, media representatives, and health professionals. Its approximately 800 media contacts yearly result in the appearance of food safety information in widely-circulated newspapers and magazines, on television and radio, and in newsletters, cookbooks, and other publications. It also distributes materials at conventions and through trade organizations.

The Hotline produced ten video and eight print news releases on seasonal food safety topics at regular intervals throughout the year. In cooperation with a government, industry, and consumer working group, the Hotline published the brochure *Safe Handling of Ready Prepared Holiday Turkey Dinners* for distribution with "box" dinners that grocers sell at holiday time.

Preharvest Food Safety

Supplying consumers with food involves many participants and systems which are linked together in a complex chain extending from farm to table. Contamination of meat, poultry, eggs, and dairy products can occur at any link in this chain. The deadly outbreak in early 1993 of *E.coli* infection in the Western United States focused national attention on the vulnerability of this chain to disease-causing pathogens.

USDA traditionally has protected consumers against foodborne pathogens by testing for drug and pesticide residues, and by inspecting livestock and poultry in processing plants for infections caused by micro-organisms. However, micro-organisms that can cause sickness in humans cannot be detected visually.

Animals are susceptible to infection or contamination with chemical and biological pathogens. Such exposure can take place on the farm, during transport, or at the market on the way to slaughter.

These animal production and meat inspection factors, coupled with consumers' increasing concern about quality, safety, and nutritional value of food, have led to the need for an improved government-industry system to enhance food safety.

To this end, USDA is designing a farm-to-table food safety strategy that will minimize pathogen contamination throughout the food production process. This strategy systematizes food safety by creating a process in which USDA looks carefully at the risks at each critical point in the food production process.

The food chain begins on the farm. From there, animals are transported to markets and then to slaughtering plants. These steps compose the preharvest portion of the food chain. A recent report from the Centers for Disease Control and Prevention concluded that most pathogens appear to enter the food chain before animals arrive at processing plants.

USDA's Animal and Plant Health Inspection Service (APHIS) is in a good position to deal with preharvest food safety because many critical points in food safety occur at precisely those points where the agency's Veterinary Service personnel already conduct animal health surveillance, disease control, and eradication.

USDA's Centers for Epidemiology and Animal Health also maintain a cadre of analytical epidemiologists, economists, and statisticians who can support the field operations in designing and implementing large-scale epidemiologic projects.

APHIS can use its many assets to help ensure a safer preharvest food production process, but food safety continues to be a responsibility shared by all participants in the food chain. Successful implementation of a national food safety program depends on coordination and cooperation among Federal and State agencies, the food industry, and consumers. Producers obviously play a critical part in this effort.

Egg Products Inspection

Another Marketing and Inspection Services agency, the Agricultural Marketing Service (AMS), assures the safety of egg products. Egg products are used by many large manufacturers to make cakes and other prepared food products.

Under the Egg Products Inspection Act, AMS provides continuous mandatory inspection in all plants processing liquid, dried, or frozen egg products. The act also controls the disposition of restricted shell eggs, those that might contain harmful bacteria that could cause foodborne illness.

In FY 1993, AMS inspected 2,378,000 pounds of liquid, frozen, and dried egg products in 84 processing plants.

AMS and cooperating State agencies began FY 1993 with inspectors at 1,537 egg handlers and hatcheries, and ended the year with 1,430, making 6,371 visits to ensure that restricted shell eggs were disposed of properly.

AMS laboratories analyzed more than 400 samples of egg products for chlorinated hydrocarbon residues, finding none at violative levels.

Like its meat and poultry counterparts, the Egg Products Inspection Act also focuses on the safety of imported products. Under the act, egg products from a foreign country can be imported into the United States only if the country's inspection system is equivalent to ours. Canada and the Netherlands are the only countries eligible to export egg products to the United States.

Pesticide Residue Monitoring

In May 1991, USDA implemented the Pesticide Data Program (PDP) to collect comprehensive data on pesticide residues in selected fresh fruits and vegetables. PDP is a multi-agency program with planning, policy, and procedural efforts coordinated among USDA, the Environmental Protection Agency (EPA), and the Food and Drug Administration. Day-to-day activities are managed by the Science Division of USDA's Agricultural Marketing Service. Program operations are carried out by nine participating States—California, Colorado, Florida, Michigan, New York, North Carolina, Ohio, Texas, and Washington. Data produced by the pesticide data program are given to EPA, which determines dietary exposure to pesticide residues, and thus better estimates risk to consumers. PDP data are also available for use by EPA to support pesticide re-registration and special reviews.

During FY 1992, the PDP tested 5,750 produce samples from 37 States and 16 foreign countries. In general, the levels of residues detected were substantially below tolerances established by EPA. Approximately 40 percent of the samples showed no detectable residues. Approximately 1 percent of the samples were found to exceed EPA tolerance levels for pesticide residues.

Since 1992, USDA increased the number of samples collected to approximately 7,900 per year, instituted a statistically valid method of sampling, and increased the coverage of pesticides of interest to EPA. The PDP also is assisting EPA in responding to the National Academy of Sciences report, *Pesticides in the Diets of Infants and Children*, by beginning to include additional high-consumption children's foods, such as processed vegetables, as well as grain and dairy products.

■ Marketing

Marketing Orders

Protecting the food supply is one function that USDA's Marketing and Inspection mission area performs for the benefit of farmers and consumers. Another function is to stabilize the marketing process. One method for achieving this stability is through Federal marketing orders, as authorized by the Agricultural Marketing Agreement Act of 1937.

A Federal marketing order gives farmers a means of solving a wide range of problems through unified action. It is a flexible tool that can be tailored to the needs of those using it. It is also a legal tool that has the force of law, with USDA ensuring an appropriate balance between the interests of agriculture and those of the general public.

Each partner—producers and USDA—has a unique role. Producers initiate orders and participate in administering them. They are usually specific to limited geographic regions, and they raise their operating expenses by assessing a fee to “handlers” (shippers) of the commodities involved. USDA, through AMS, furnishes guidance and sees that the orders are properly administered and enforced.

Marketing order authority is broad and varied, but the basic purpose is to provide for the orderly marketing of fruits, vegetables, and milk—to ensure an adequate flow of products to consumers, as well as a fair return to producers. Some States have their own marketing orders for milk and produce.

Milk

Federal milk marketing orders establish minimum prices, based on supply and demand conditions, that milk handlers or dealers must pay for the milk they buy from dairy farmers. An order must be approved by at least two-thirds of the farmers supplying milk to the marketing area. Public hearings are held when new orders are established and when changes are made in the marketing orders. In 1993 there were 38 Federal milk marketing orders with urban areas at their hubs; they covered parts of all States but California.

Operating at the first level of trade, where milk leaves the farm and enters the marketing system, Federal milk orders help build more stable marketing conditions. They contain the built-in flexibility needed to cope with market changes. To those living in Federal milk marketing order areas, this helps ensure a steady supply of fresh milk. Most of the Nation's major population centers are within a milk marketing order area.

Fruits, vegetables, and specialty crops

Growers of certain fruits, vegetables, and specialty crops (spearmint oil and some nut crops are examples) use marketing agreements and order programs to bring greater stability and orderliness to marketing. (Federal marketing agreements, authorized only for fruits and vegetables, differ from Federal marketing orders in that under agreements growers do not vote, and agreements are binding only on the

handlers who subscribe to the agreement. In a marketing order, all eligible growers may vote in referenda, and it covers all handlers shipping the products. Peanuts are the only commodity operating under a Federal marketing agreement.)

There currently are 39 active Federal fruit and vegetable marketing order programs. In FY 1993, they covered about \$6 billion (at the farm level) in crops grown in 33 States.

As in the case of milk marketing orders, orders and agreements for fruit and vegetable growers are issued by the Secretary of Agriculture only after a public hearing—where producers, marketers, and consumers may be heard—and after the producers vote their approval.

After orders and agreements have been issued, the growers and handlers administer them through a committee made up of industry members and, in many cases, an additional member appointed to represent the public's interest.

Most of the fruit and vegetable marketing orders and the peanut marketing agreement have quality and size regulations that make the most desirable grades and sizes available for the fresh produce market. Some have quantity regulations that prevent gluts and shortages by keeping the commodity moving in an orderly fashion throughout the marketing season. Many orders and agreements also have marketing research and development authority, which permits them to undertake projects to find new market outlets and to promote consumption.

Research and Promotion

Federal research and promotion programs—authorized by separate laws for their particular commodities—enable farmers to finance their own coordinated programs of research, producer and consumer education, and promotion so as to improve, maintain, and develop markets for their commodities and to solve production and marketing problems. Most of the programs reach over a wide area, and many are national in scope. Most of the commodities under these programs are not covered by the Agricultural Marketing Agreement Act of 1937.

Currently authorized research and promotion programs are for beef, cotton, cut flowers and greens, dairy products, eggs, fluid milk, honey, lamb, limes, mohair, pecans, pork, potatoes, soybeans, watermelon, and wool.

In general, once legislation is enacted, representatives of the sponsoring group submit a program proposal to USDA. Then, depending on the authorizing legislation, there could be public hearings, development of necessary regulations, followed by a referendum of producers to determine support for the program. AMS has oversight responsibility for such programs.

Separate promotion and research orders for beef and pork were implemented in 1986. The beef program is financed by a mandatory assessment of \$1 for each head of cattle sold in the United States and an equivalent amount on imported beef and cattle. The pork program now requires an assessment of 0.35 percent of the market value of all hogs sold in the United States and an equivalent amount on imported hogs, pork, and pork products.

Authorized in 1974, the egg research and promotion program, which affects “shell” eggs, egg products, spent fowl, and products made from spent fowl, is funded by a producer assessment of 5 cents per 30-dozen case of eggs sold commercially. Producers owning 30,000 or fewer laying hens are exempt from paying assessments. In 1993, Congress authorized raising the exemption level to 75,000 hens and raising the maximum rate of assessment to 20 cents per 30-dozen case. Producers recently approved raising the exemption, and will vote in the autumn of 1994 on whether to increase the assessment.

A promotion and research program for soybeans was authorized in 1990 and implemented in 1991. The program is funded by an assessment of 0.5 percent of the net market price of soybeans sold by the producer.

Authorized in 1966, and the model for subsequent research and promotion programs, the cotton research and promotion program assesses cotton producers and importers of cotton and cotton-containing products. They pay \$1 per bale plus an additional assessment of 0.5 percent of the value of the cotton to finance advertising and promotion projects and to support production, processing, and marketing research to develop and improve cotton products.

A national program for dairy product promotion, research, and nutrition education is financed by a mandatory, nonrefundable 15-cent-per-hundredweight assessment on all milk sold by dairy farmers. Started in May 1984, the program was extended indefinitely, following approval in a 1985 producer referendum. It is by far the largest of the programs, involving nearly \$210 million annually. In an August 1993 referendum, dairy farmers voted to continue the program.

Direct Marketing and Wholesale Market Development

The Federal-State Marketing Improvement Program (FSMIP), which AMS administers, enables States to conduct studies to improve local marketing systems. The aim is to reduce marketing costs for producers and, ultimately, the cost of food to consumers. In 1993, this \$1.2 million matching fund program—where a State must contribute an amount equal to the Federal grant it receives—involved marketing improvement projects in 24 States.

FSMIP grants have been awarded for improving direct marketing by farmers to consumers, developing domestic markets for certain products, improving economic and physical efficiency of marketing, improving the gathering and distribution of marketing information, developing alternative crops, developing objective measures for quality grading, and studying new marketing concepts.

The Wholesale Market Development Program—also administered by AMS—conducts research to find new ways to expedite handling and storing food products moving between the farmer and retail outlets. The program helps develop and design modern facilities, such as wholesale food distribution centers, to serve major U.S. urban areas. The program also designs or redesigns farmers markets.

This program also studies ways to improve specific food processing and warehousing activities, and it develops information, systems, and strategies to increase growers’ and handlers’ marketing efficiencies—which help to ensure reasonable retail food prices.

Agricultural Transportation

Transportation costs, and the availability of basic transport to move agricultural commodities, are central to the whole chain of food production and distribution, and USDA has long been concerned with these issues. In 1991, USDA's Office of Transportation was incorporated into the Agricultural Marketing Service as the Transportation and Marketing Division to improve the coordination of transportation and marketing programs.

Transportation issues that have been addressed include waterway user fees; the condition of rural roads and bridges; the impact of rail and truck deregulation on agriculture; and the situation of rail, truck, and marine shipping for export promotion.

AMS analyzes agricultural and rural transportation issues, providing reports to a variety of policy and regulatory forums. Technical assistance and information are provided to producers, producer groups, shippers, exporters, rural communities, carriers, government agencies, and universities.

Technology-related research is also conducted on such projects as improved handling and packaging for perishables, cryogenic refrigeration (use of carbon dioxide snow) for transporting frozen foods, new handling procedures for the air shipment of bees, and handling and regulatory requirements for shipping livestock.

In the international transportation area, efforts have focused on such issues as maritime policies affecting the competitiveness of U.S. agricultural products worldwide and the constraints in foreign ports that limit imports of U.S. products.

AMS also coordinates bilateral discussions on issues involving U.S. agricultural exports to Mexico, and it administers the Agreement on the International Carriage of Foodstuffs and the Economic Commission for Europe treaty. In 1993, AMS continued to provide Eastern Europe and other countries with technical assistance to improve transportation and distribution of their agricultural commodities.

Market Regulatory Laws

Through AMS, USDA administers and enforces regulatory laws that help make marketing more orderly and efficient.

The Perishable Agricultural Commodities Act establishes a code of trading ethics and encourages fair trading in the marketing of fresh and frozen fruits and vegetables. It prohibits unfair and fraudulent business practices and provides a forum to resolve contract disputes. Injured parties can collect damages from any buyer or seller who fails to live up to contract obligations.

The law also protects sellers of produce by imposing a trust on a buyer's inventory and receivables, which gives the seller a security interest in the product until payment is received.

In 1955, an amendment was added to the Agricultural Marketing Act of 1946 to permit AMS graders to review grade labeling and advertising at all marketing levels to eliminate and prevent the misuse of USDA grade names. In 1993, over 800 reviews at the retail level netted 88 violations.

The Federal Seed Act prohibits false labeling and advertising of seed in interstate commerce and complements State seed laws by prohibiting the shipment of seed containing excessive noxious weed seeds.

The Plant Variety Protection Act extends patent-type protection to developers of plants that reproduce through seeds. Developers of new varieties of such plants as soybeans, wheat, corn, and marigolds apply to USDA for certificates of protection. USDA examiners determine whether the variety actually is novel and entitled to protection. The holders of certificates can turn to the courts to protect their inventions from exploitation by others.

The Agricultural Fair Practices Act enables farmers to file complaints with USDA if processors refuse to deal with them because they are members of a producers' bargaining or marketing association. This statute makes it unlawful for handlers to coerce, intimidate, or discriminate against producers because they belong to such an association. USDA helps to institute court proceedings when farmers' rights are found to be so violated.

Market News

The Federal-State market news service—carried out by AMS in cooperation with 41 State agencies, the District of Columbia, 3 territories, and the U.S. Agency for International Development—reports up-to-the-minute information on prices, supply, and demand for most agricultural commodities.

This information aids producers, wholesalers, and others in the marketing chain in deciding where and when to buy or sell. The industry voluntarily provides the information on which market news reports are based.

Almost anywhere and any time trading in farm products goes on, Federal-State market news reporters are at work providing information about market conditions to the agricultural community.

During visits to trading points and by telephone, market news reporters gather data on qualities and quantities of the products sold, the prices paid, the demand, the movement, and the trends. From this information they develop timely, accurate, unbiased market reports for practically all agricultural commodities. They continually gather this information throughout every trading day and promptly provide releases to the waiting public.

The reports cover buying and selling of these commodity groupings: cotton and cottonseed; domestic fruits and vegetables, including truck rates; imported fruits and vegetables; floral products and specialty crops; livestock, meat, poultry, eggs, grain, hay, feeds, and wool; dairy products; and tobacco. Foreign markets reported on include Mexico, Canada, Japan, and several European countries.

AMS uses satellite communication, Earth stations, and microcomputers to compile 750 to 900 market news messages and reports each day. This totals about 50 million characters of information transmitted by satellite and received by 130 market news offices and private subscribers daily. Market news from California can be available in New York, and points in between, minutes after it is released.

Automatic telephone answering devices are also used to disseminate market news. In 39 States a farmer or trader can dial a local number and receive a recorded message—updated several times a day—with the latest market news reports for a particular commodity, in a specific area.

Market news reports also may be found in newspapers and magazines, radio and television, computer bulletin boards, and printed and faxed reports that are available by subscription.

Market news reporters gather and document information through personal observation of the transaction, talks with buyers and sellers, and checks on sales records. They must make sure to give an accurate picture of the market, because many people rely on their reports.

Market news reporters must be experts on the commodities covered because, even if the product is not officially graded, the reporter must often report prices paid for the various qualities of products using nationally understood terms, or U.S. grades. Only in this way can prices, supply, and demand be realistically compared from day to day and from market to market throughout the country.

Farmers, and others who buy and sell farm products, need to make these comparisons. They need market news in order to make decisions on how much and what kind of product to grow, where and when to market, and whether or not to accept a price bid.

Federal Grading and Certification Programs

USDA grade standards and purchase specifications allow buyers and sellers to understand quality and yield differences so they can trade agricultural products with confidence, without having to directly evaluate the products themselves. Ultimately, these standards assure consumers that their food is of uniform and consistent quality. Grade standards are continually evaluated to ensure that they remain realistic and responsive to users' needs.

Grading is most often used by wholesale traders, but the grades for some products are frequently advertised to consumers.

Grading

Two USDA agencies—the Agricultural Marketing Service and the Federal Grain Inspection Service—provide voluntary grading services for most food and farm products. Most grading and grade labeling is voluntary, but some grading services are mandatory.

Grading is performed by a well-trained staff of Federal and licensed graders. A fee is charged to the users of Federal grading services—generally exporters, packers, wholesalers, elevator operators, or processors who request a service.

During FY 1993, USDA graded 37 percent of the shell eggs, 95 percent of the butter, and 55 percent of the frozen fruits and vegetables produced in the United States—plus 74.6 billion pounds of fresh fruits and vegetables, and 8.8 billion pounds of processed fruits and vegetables. In addition, of all federally inspected meat and poultry production in the United States, USDA graded 81.2 percent of the beef, 80 percent of the turkeys, and 56 percent of the chickens and other poultry.

USDA also classed more than 97 percent of the cotton and inspected 97 percent of the tobacco produced in the United States.

In FY 1993, the national grain inspection system conducted 2.6 million inspections of grains and oilseeds under the U.S. Grain Standards Act. In total, USDA inspected 256 million metric tons of the 411 million metric tons of grains, oilseeds,

and rice that U.S. farmers produced that year. Nearly 60 percent of the grain inspected represented intrastate and interstate shipments.

Grade Standards

USDA grade standards help the buyer and seller understand quality levels. Ultimately, these standards assure consumers that their food is of a uniform and consistent quality.

Grade standards are continually evaluated by experts to ensure that they remain realistic and responsive and provide meaningful guidelines. Each year about 2 percent of the standards for some 240 food and farm products are revised to keep them consistent with current marketing practices. New standards also are developed as the need arises.

The number of grades for a particular product depends on the product's variability. There are six grades each for corn and wheat, seven grades for milled rice, eight grades for beef, and three for turkey. Over 170 standards cover a wide range of fresh and packaged fruit and vegetables.

Grading is used more often at the wholesale level than at the consumer level. Grade labeling of food products is not required by law.

Federal Certification Programs

In addition to grading services, USDA provides certification services which allow graders to review and accept agricultural products that fulfill certain specification requirements. These certified products are ordered and purchased by both public and private, large-quantity buyers such as hospitals, schools, restaurants, hotels, airlines, and the military services. This also includes certifying food items for the National School Lunch Program and other food assistance programs.

Organic Certification

The organic certification program was authorized by the Organic Foods Production Act as part of the 1990 farm bill. AMS is taking the lead in developing the organic certification program.

The goals of the organic certification program are to:

- Establish national standards governing the marketing of certain products as organically produced,
- Assure consumers that organically grown products meet a consistent standard, and
- Facilitate interstate commerce in fresh and processed food that is organically produced.

The act calls for establishment of a National Organic Standards Board, which was first appointed in January 1992. Its job is to help develop standards for substances to be used in organic production. Six subcommittees are developing a list of approved and prohibited substances for use in processing standards and materials, accreditation, irrigation water standards, livestock production practices, and import requirements. Existing organic programs will have to conform with the national program when it is in place.

Grain Inspection

The Federal Grain Inspection Service was established in 1976 as a separate agency in USDA to carry out the provisions of the U.S. Grain Standards Act. Congress charged the agency with establishing a nationwide system to inspect and weigh U.S. grain at both interior and export locations.

The orderly marketing of grain requires uniform descriptions—or grain standards—that are understood and accepted by buyers and sellers. To meet this need, official U.S. standards have been developed for 12 grains: corn, wheat, rye, oats, barley, flaxseed, sorghum, soybeans, sunflower seeds, triticale, canola, and mixed grain.

U.S. grain standards are continuously reviewed and revised as necessary to meet current marketing needs and practices.

Most grain for export must be officially weighed and inspected. The inspection and weighing of export grain must be performed by FGIS personnel, or by licensed employees of States that have been delegated this authority by FGIS; currently eight States—Alabama, California, Minnesota, Mississippi, South Carolina, Virginia, Washington, and Wisconsin—have this delegated authority.

The majority of inspections of grain handled at inland locations or sold in the domestic market are performed by private firms and State agencies designated by FGIS to provide official inspection service under FGIS supervision. Such inspection is provided upon request, on a fee basis. Official weighing of grain sold in the domestic market also is performed upon request, on a fee basis.

Fees for inspection and weighing are paid by those requesting services. Buyers or sellers at both export and inland markets who are not satisfied with the grades they receive can request a reinspection or an appeal inspection.

In addition to inspecting and weighing grain, FGIS is also responsible, under the Agricultural Marketing Act of 1946, for inspecting and weighing rice, dry beans, peas, lentils, processed grain products, hops, and other assigned agricultural commodities. These services are available upon request, on a fee basis.

Meat, Poultry, and Livestock Marketing Regulations

The Packers and Stockyards Act, administered by USDA, regulates marketing practices in the livestock, poultry, and meat industries. Specifically included are livestock markets (terminal and auction markets), livestock market agencies, livestock dealers, meat packers, and live poultry dealers.

The law prohibits unfair, deceptive, discriminatory, and monopolistic trade practices in regulated industries. It also provides financial protection for livestock producers and requires reasonable practices in the care and handling of livestock at stockyards.

The Packers and Stockyards Act encourages fair and open competition in marketing livestock, poultry, and meat to ensure that true market value is received. Livestock markets, buying stations, dealers, packers, and poultry processors subject to the Act must maintain accurate scales and weigh livestock, poultry, and meats accurately.

■ **Protecting Agricultural Health and Productivity**

Excluding Foreign Pests and Diseases

Agricultural quarantine inspection is the first line of defense against foreign pests and diseases. Quarantines regulate the importation of agricultural materials that may harbor exotic insects, foreign plant and animal diseases, or noxious weeds. For example, a tropical fruit may contain the eggs or larvae of a score or more of highly destructive fruit flies. A piece of sausage may carry the virus of a devastating animal plague.

Inspectors with USDA's Animal and Plant Health Inspection Service (APHIS) are stationed at border ports, seaports, and international airports to protect U.S. agricultural resources from exotic animal and plant pests and diseases.

In FY 1993, USDA inspectors at international ports of entry inspected nearly 425,000 air and ship arrivals and intercepted nearly 1,475,000 prohibited plant materials from international travelers. A large volume of prohibited animal products also is intercepted every year.

From high-tech to a keen nose, USDA uses a variety of means to exclude foreign pests and protect American agriculture. Inspectors augment visual inspection with 75 x-ray units that help check passenger baggage and mail for prohibited materials. They also have enlisted trained detector dogs and their keen sense of smell to help sniff out prohibited fruit and meat. The friendly beagles in USDA's 37 "Beagle Brigade" teams check the baggage of passengers arriving from overseas at 19 airports.

In addition to domestic exclusion efforts, APHIS has a corps of experts stationed overseas. They gather and exchange information on plant and animal health, conduct preclearance programs for foreign agricultural commodities, and cooperate in international programs against certain pests and diseases.

If foreign pests or diseases do manage to slip past our border defenses, USDA conducts appropriate control and eradication measures, for example the Mediterranean fruit fly eradication projects in California in the early 1990's and the control of exotic Newcastle disease outbreaks in pet birds in several States during the 1980's.

Early detection of exotic animal diseases by alert livestock producers and practicing veterinarians is the key to quick elimination. More than 300 trained veterinarians are located throughout the United States to investigate suspected foreign diseases. Within 24 hours of diagnosis, one of four specially trained task forces can be mobilized at the site of an outbreak to implement the measures necessary to eradicate the disease.

Import-Export Regulations

APHIS is responsible for enforcing regulations governing import and export of plants and animals and certain agricultural products.

Import requirements depend on both the product and the country of origin. Plants and plant materials usually must be accompanied by a phytosanitary certificate issued by an official of the exporting country. Livestock and poultry must be accompanied by a health certificate. Animal products, such as meats and hides, are restricted if they originate in countries that have a different disease status than the United States.

APHIS regulates the importation of animals that enter the country by land, along the borders with Mexico and Canada. Imports of livestock and poultry from other countries must be quarantined at one of four animal imports centers: Newburgh, NY; Miami, FL; Los Angeles, CA; and Honolulu, HI. Personally owned pet birds can enter through one of six USDA-operated bird quarantine facilities. These are located in New York, NY; Miami, FL; San Ysidro, CA; Hidalgo, TX; Los Angeles, CA; and Honolulu, HI. Pet birds from Canada can enter without quarantine. Commercial shipments of pet birds can enter through one of 60 privately owned, USDA-supervised quarantine facilities. A special high-security animal import center at Key West, FL, provides a safe means of importing animals from countries that have foot-and-mouth disease.

Plant Health Programs

When an insect, weed, or disease poses a particularly serious threat to a major crop, the Nation's forests, or other plant resources, APHIS may join in the control work.

Most pests and weeds that are targets of USDA's Plant Protection and Quarantine programs are not native to America. When pests are new to this country, control techniques may not be available. USDA then applies interstate quarantines and takes other steps to prevent spread until effective control measures can be developed.

In many cases, the foreign pests are only minor problems in their native lands because they are kept in check by native parasites, predators, and diseases. Since these natural enemies may not exist in the United States, one control technique is the importation, rearing, and release of parasites and other biological control organisms. Other control tools include the careful application of pesticides, release of sterile insects, and cultural controls such as plowing under or shredding plant stalks immediately after harvest.

Control programs are designed with safeguards to protect the health of people, crops, wildlife, and the overall environment. Whenever possible, nonchemical control methods are used. And each program is critically reviewed for its potential to impact the environment.

One major program is the effort to eradicate boll weevils from the United States. The boll weevil first entered this country from Mexico in the late 1890's and soon became a major pest of cotton. It has caused an estimated \$12 billion in losses to the Nation's economy.

Successful boll weevil eradication experiments, beginning in the early 1970's, developed the technology necessary to eradicate boll weevils from Virginia, North Carolina, South Carolina, and much of Georgia and Florida. Eradication efforts are continuing in Alabama and will begin in Mississippi and Texas. In the West, boll weevils have been eradicated in northwestern Mexico, California, and Arizona.

In the cooperative boll weevil eradication program, USDA supplies equipment, technical and administrative support, and 30 percent of program funds. Grower assessments and/or State appropriations finance the remainder of the program.

Other domestic programs include: a quarantine program to halt the spread of European gypsy moths from infested areas in the Northeastern United States; quarantines to prevent the spread of imported fire ants; containment and eradication of

witchweed, a parasitic disease that attacks corn and other crops in the Carolinas; and release of irradiated sterile pink bollworm moths to keep this insect out of cotton in California's San Joaquin Valley.

Monitoring Plant and Animal Pests and Diseases

To monitor plant pests, APHIS works with the States in a Cooperative Agricultural Pest Survey. Data on weeds, insects, and plant diseases and pests are entered into a nationwide database, which can be accessed by authorized persons.

By accessing the central database, users can retrieve the latest data on pests which can assist in pest forecasting, early pest warning, quicker and more precise delimiting efforts, and better planning for plant pest eradication or control efforts. Gathering information on the state of animal health in the United States is the goal of USDA's National Animal Health Monitoring System, begun in 1983. It randomly selects herds or flocks to form a sample population. The system will ultimately provide statistically sound data concerning U.S. livestock and poultry diseases and disease conditions, along with their costs and associated production practices.

Biological Control and IPM Programs

Biological control and IPM—or Integrated Pest Management—programs could be considered as two sides of the same coin. Both are aimed at eliminating or reducing reliance on chemical pesticides to combat plant pests and weeds.

Biological control is the use of exotic natural enemies released on a target pest to establish a self-perpetuating system. Biological control involves the deliberate release and cultivation of predatory insects, deadly parasites, and infectious organisms that naturally attack harmful insects and weeds.

IPM involves a combination of techniques—including biological control—that contributes the most economically effective pest suppression. This includes pest monitoring and determination of economic thresholds for such control practices as: cultural methods, diseases that attack specific pests, resistant crop varieties, genetic methods, attractants, augmentation or conservation of parasites or predators, and chemical pesticides as needed.

Scientists in USDA's Agricultural Research Service and State agricultural experiment stations are conducting research on the various components of IPM to improve their use and application. Their investigations cover such techniques as land preparation and cultivation, crop rotations and fallow, timing of planting and harvesting, and timing of irrigation. They also look for ways to take advantage of a pest's natural enemies.

APHIS is the lead agency in a cooperative IPM initiative for grasshopper control in the Western United States. Many agencies, including the Environmental Protection Agency and the U.S. Department of the Interior, participate in the project, begun in 1987, which aims to find better and more acceptable ways of preventing grasshopper damage, while protecting the environment.

Breeding resistant crops has been another successful control technique, especially against diseases and insects. USDA and State agricultural experiment stations provide resistant germplasm, which is a vital source of breeding materials.

Genetic methods being used and improved by USDA scientists include sexual sterilization and release of insects, so that native insects mate with sterile ones and do not produce offspring.

Pesticides remain a component in IPM systems, because of their effectiveness against pests that affect our health and attack our crops, livestock, pets, and structures. Studies are conducted to find ways to use pesticides more efficiently, through improved timing and methods of application. Research is also conducted on developing selective, nonpersistent, and biodegradable pesticides.

USDA and land-grant university scientists are also seeking to improve highly sensitive methods for detecting and measuring pesticides and their metabolites, so as to ensure worker safety and protect the environment.

Because pesticides may cause undesirable effects, USDA encourages use of effective pest control methods that pose a low potential hazard to human health, livestock, fish and wildlife, and beneficial insects.

Persistent or hazardous pesticides are not used in pest control programs when an effective nonresidual or nonchemical alternative is available. When persistent pesticides are necessary, they are used in minimal amounts and are applied precisely to the infested area as infrequently as possible.

Because of the important issues related to the use of pesticides and pest control practices, USDA's research and extension partners have conducted a National Pesticides Impact/Assessment Program since 1976. The primary purpose of the program is to coordinate and develop USDA policy and viewpoints on pesticides and related uses.

Scientists are also studying newer methods of pest control, such as hormones that regulate the growth, development, and reproduction of insects. Hormones, or insect growth regulators, can disrupt a wide range of bodily functions when applied at critical times during the life cycle. Growth regulators are a class of pesticides that have great potential for application in pest management programs because they are targeted at specific organisms and are biodegradable.

USDA and university scientists also look for ways to take advantage of a pest's natural enemies. This approach, which is called biological control, has special importance for North America, where most farm pests are immigrants. These immigrant pests can proliferate unhindered, because they often cross the ocean without bringing along their own natural enemies.

Biological control includes techniques such as mating pheromones that are used to lure insects to traps or other devices or to prevent male and female insects from locating each other. Biological control also means using predators, parasites, and pathogens to combat plant pests. Predators and parasites include insects, mites, and nematodes that naturally attack a target pest. Predators kill the pest outright. Parasites sap the target pest more slowly, gradually injuring or killing it. Pathogens include bacteria, viruses, or fungi that cause diseases specifically injurious to a target pest.

To coordinate the important search for new and better biocontrol opportunities, a National Biological Control Institute was established in USDA's Animal and Plant Health Inspection Service in 1989. The institute's mission is to promote and facilitate biological control techniques.

USDA biocontrol programs currently underway include efforts against the cereal leaf beetle, sweetpotato whitefly, Russian wheat aphid, Colorado potato beetle, euonymus scale, brown citrus aphid, leafy spurge, diffuse and spotted knapweed, and common crupina.

Veterinary Biologics

Under the Virus-Serum-Toxin Act of 1913, USDA's Animal and Plant Health Inspection Service enforces regulations to assure that animal vaccines and other veterinary biologics are safe, pure, potent, and effective.

Veterinary biologics are products designed to diagnose, prevent, or treat animal diseases. In contrast to animal medicines, drugs, or chemicals—all of which are regulated by the U.S. Food and Drug Administration—veterinary biologics are derivatives of living organisms. Unlike some pharmaceutical products, most biologics leave no chemical residues in animals. Furthermore, most disease organisms do not develop resistance to the immune response produced by a veterinary biologic.

USDA veterinarians regulate and license all veterinary biologics as well as the facilities where they are produced. They also inspect and monitor the production of veterinary biologics, including both genetically engineered products and products produced by conventional means. Necessary tests of veterinary biologics are conducted at USDA's National Veterinary Services Laboratories in Ames, IA.

A half century ago, there were perhaps a half dozen animal vaccines and other biologics available to farmers. During 1993, 110 new product licenses were issued and 35 were terminated. To date, there are 2,102 active product licenses and 117 licensees and permittees.

Animal Health Programs

Protecting the health of the Nation's livestock and poultry industries is the responsibility of Veterinary Services in APHIS. Veterinary medical officers and animal health technicians work with their counterparts in the States and with livestock producers to carry out cooperative programs to control and eradicate certain animal diseases.

The organized effort against livestock diseases began in 1884 when Congress created a special agency within USDA to combat bovine pleuropneumonia—a dread cattle disease that was crippling exports as well as taking a heavy toll on domestic cattle. Within 8 years, contagious bovine pleuropneumonia had been eradicated, and this campaign set the pattern for subsequent animal disease control and eradication programs.

Other diseases that have been eradicated from the United States include foot-and-mouth disease, Texas cattle fever, dourine, glanders, fowl plague, Venezuelan equine encephalitis, sheep scabies, screwworms, exotic Newcastle disease, hog cholera, and lethal avian influenza.

Current USDA disease eradication programs include cooperative State-Federal efforts directed at cattle and swine brucellosis, bovine tuberculosis, pseudorabies in swine, and scrapie in sheep and goats.

As of May 1994, 32 States, Puerto Rico, and the U.S. Virgin Islands were free of cattle brucellosis; the remaining 18 States are in "Class A," meaning they have a

herd-infection rate of less than 0.25 percent. Forty-two States, Puerto Rico, and the U.S. Virgin Islands have eradicated swine brucellosis. In the bovine TB eradication program, 41 States and the U.S. Virgin Islands are accredited TB-free. Twelve States have eradicated pseudorabies.

Disease control and eradication measures include:

- Quarantines to stop the movement of possibly infected or exposed animals,
- Testing and examination to detect infection,
- Destruction of infected animals (and, sometimes, animals exposed to infection), to prevent further disease spread,
- Treatment to eliminate parasites,
- Vaccination in some cases, and
- Cleaning and disinfection of contaminated premises.

Animal Damage Control

The APHIS-administered Animal Damage Control (ADC) program provides recommendations and direct assistance to Government agencies and private individuals to help protect American agriculture from injury and damage caused by wild animals—including mammals, birds, and reptiles. The program also protects natural resources, property, and human health and safety.

ADC programs are supported by research that is coordinated by the Denver Wildlife Research Center. Scientists there develop animal damage control methods that are technically, scientifically, and ecologically sound.

Most activities are conducted on a partnership basis: individuals work with local, State, and Federal cooperators that use matching funds to help pay for assistance. The program is carried out under the Animal Damage Control Act of 1931, which authorizes USDA to assist producers and the general public with problems caused by wild animals and birds.

Virtually all species of wildlife can be harmful at times; but many of the serious loss problems are caused by introduced species—such as starlings, pigeons, and English sparrows—or by extremely adaptable species—such as coyotes, deer, and beavers.

Examples of ADC activities include: (1) working with airports to prevent collisions between wildlife and aircraft, (2) resolving nuisance bird problems through use of frightening devices, structural or habitat modification, capture and relocation, and selective removal, (3) controlling livestock predators by changing animal husbandry techniques, erecting predator-proof fences, using livestock guarding dogs, or selectively removing predators.

ADC personnel use or recommend nonlethal control methods wherever practical. More than half the research funds are used to identify and develop nonlethal methods of dealing with wildlife damage. Livestock guarding dogs, predator-proof fencing, and the “Electronic Guard” (a device that combines a flashing strobe light and a siren to scare coyotes) are examples of nonlethal ways to minimize damage from predators.

The ADC program deals with some 28 different kinds of loss affecting 43 agricultural crops, 24 types of livestock, 7 types of forestry or range, and about 18 types of property.

Humane Care of Animals

Many local, State, and Federal laws deal with the humane treatment and care of animals. An important Federal law is the Animal Welfare Act, which regulates the care and treatment of animals that are used for research or exhibition or are sold as pets at wholesale. This act, which APHIS administers, specifically excludes animals raised for food or fiber (including fur-bearing animals). USDA's role lies not in regulating farmers, but in conducting research and providing information to enhance the management of farm animals.

USDA has long had a concern for the health and well-being of animals. The first Federal humane law, which mandated feed and water for farm animals being transported by barge or rail, was passed in 1873. In 1966, Congress passed the Laboratory Animal Welfare Act, in response to complaints about suffering and neglected dogs and cats supplied to research institutions, and also to focus on the problem of "petnapping."

Four years later, a much more comprehensive piece of legislation—the Animal Welfare Act—was passed by Congress. This law expanded coverage to most other warmblooded animals used in research; to animals in zoos and circuses and marine mammals in sea life shows and exhibits; and to animals sold in the wholesale pet trade. The law does not cover retail pet shops, game ranches, livestock shows, rodeos, State or county fairs, or dog and cat shows.

The Animal Welfare Act has been amended several times. A 1976 amendment extended the scope of the act to include care and treatment while animals are being transported via common carriers. It also outlawed animal fighting ventures, such as dog or cock fights, unless specifically allowed by State law.

A 1985 amendment focused on research animals. It called for the establishment of special committees at every research facility to oversee animal use and for regulations providing for exercise of dogs and the psychological well-being of nonhuman primates.

In 1990, standards were revised for guinea pigs, hamsters, and rabbits. These standards increased the minimum space requirements and provided additional requirements to protect animals being transported via common carrier.

The act was further strengthened by the Pet Protection Act of 1990, which became effective on August 23, 1993. The Pet Protection Act sets specific holding periods for animals in public or private pounds or shelters, and requires certification and documentation from dealers that the holding period has been met.

Regulatory Enforcement and Animal Care officials at USDA enforce the Animal Welfare Act through a system of licensing and registration of regulated businesses. The agency performs inspections to ensure that licensees and registrants are complying with the standards for proper care and handling of animals covered by the act.

APHIS also enforces the Horse Protection Act, which prohibits the cruel practice of "soring" show horses. The primary enforcement tool is through inspections of horses at shows by Federal personnel and by "Designated Qualified Persons," licensed by industry organizations and certified and monitored by APHIS.

10. Research, Education, and Economics

■ The Cooperative Extension System

USDA's Extension Service is the Federal partner of the Cooperative Extension System (CES), a national educational network linking research, science, and technology to the needs of people where they live and work. Extension's focus is education—practical education Americans can use in dealing with the critical issues that affect their daily lives and the Nation's future.

Extension education combines the expertise and resources of Federal, State, and local governments. The partners in this unique System are:

- The Extension Service at USDA,
- Extension professionals at land-grant colleges and universities (sometimes called land-grant institutions) throughout the United States and its territories, and
- Extension professionals in nearly all of the Nation's 3,150 counties.

In addition, thousands of paraprofessionals and nearly 3 million volunteers support this partnership and magnify its impact. The Cooperative Extension System's strong linkages with other public and private groups enhance and expand educational activities.

Critical National Issues

Through an interactive strategic planning process, Extension educational programs and resources target today's critical national issues and will continue to address the critical concerns of Americans. Current issues addressed as national initiatives include:

■ **Communities in Economic Transition.** Many rural communities, as well as urban centers, face an impending economic crisis because of deteriorating infrastructures, declining employment, and the reduced earning capacity of families living in these areas. In response to this economic crisis, the Cooperative Extension System is implementing educational programs that focus on strategic economic development, enterprise development, and business assistance for these communities.

■ **Decisions for Health.** The Cooperative Extension System is moving quickly to meet the health care needs of the American public by empowering individuals and communities to decide rationally and systematically how best to meet their health and health care needs. To accomplish this, the CES is educating the public about health-care reform issues, early childhood immunization, and community "capacity building" which is a self-help program to develop leaders, improve employment, expand tax bases, and improve social services.

■ **Food Safety Awareness.** This program educates the public in the safe handling of food. It is an instrument for extending the food safety information of other USDA agencies as well as of other Federal and State agencies.

■ **Water Quality.** Extension programs help consumers, chemical users, and local policymakers understand the causes and effects of water pollution and work to achieve an atmosphere of cooperation among varied interests in the water quality area.

■ **Children, Youth, and Families.** The Cooperative Extension System provides a broad spectrum of educational programs for children, youth, and families in high-risk environments. The programs address topics such as self esteem building, health and nutrition, money management, child care, and education. Extension's children, youth, and family programs focus on prevention and intervention by building community partnerships. The programs are carried out in public schools, 4-H programs, summer camps, county offices, clients' homes, and community centers.

■ **Sustainable Agriculture.** Americans nationwide are becoming increasingly concerned about social and environmental farm issues such as food safety and quality, surface and ground water contamination, biotechnology applications, and natural resource management. Extension staff nationwide are developing information, education, and demonstration programs that promote economically sound, socially acceptable, and environmentally friendly agricultural practices.

■ **Waste Management.** Growing public concern over environmental quality, together with increasing regulatory requirements for safe waste disposal, have created an urgent need for waste management education in the United States. The Cooperative Extension System is working closely with other Federal, State and local agencies to develop collaborative efforts in waste disposal.

Nationwide, Extension professionals in agriculture, natural resources, home economics, human nutrition, rural and community development, and 4-H and children and youth programs focus their educational programs on these current initiatives.

Giving Local Meaning to the National Information Infrastructure

Modern technological developments are improving the Cooperative Extension System's ability to extend its educational resources to a broader audience. All CES State offices and nearly two-thirds of the county offices are interconnected via interactive communication technology. Communications and the use of electronic technologies are crucial to today's Extension programs. The Federal Extension Service, USDA, is assisting local community networks to provide electronic access to Extension and other Federal information resources.

Redefining How, Where, and When People Learn

The CES is designing educational programs that combine the power of satellite video technology, Internet, and other technologies with research-based educational methodology. These latest technological developments are reshaping CES educational program delivery and providing greater audience access.

The CES's extensive satellite downlink and uplink capabilities, its nationwide computer and human resource network, and its expertise in developing educational programs are perhaps unequalled in the public or private sector. CES's strength lies in its ability to build upon its existing network of information and educational services through collaborative work, to make information resources available locally and globally.

■ **Did you know?**

There are 5,478,826 youth participants in Extension's 4-H program, making it one of the largest youth programs in the Nation.

There are 9,615 County Extension Agents working in 3,150 counties across America, and nearly 17,000 Extension staff members altogether.

Nearly 3 million trained volunteers work with Extension programs across the country, providing support in such areas as gardening, nutrition, health, youth development, and financial planning.

Nearly 50,000 job opportunities are available each year in the food and agricultural sciences and related areas of study.

You can acquire more Extension Service information electronically by establishing an account on a computer that is linked to Internet, the Federal information electronic network. If you have questions about access, contact your local library or computer specialist.

By using "Gopher," a powerful software researching tool, you can access libraries from around the world. You can access the main menu of the Extension System by typing `gopher esusda.gov` at the prompt line. You may then make the following sequence of selections: "All Other Gophers"/"North America"/"USA"/"General"/Extension Service, USDA". You may then search for the particular information you want.

History

Established in 1914, the Cooperative Extension System was designed as a partnership between USDA and the land-grant universities, which were authorized by the Federal Morrill Acts of 1862 and 1890. Legislation in various States has enabled local governments and organized groups in the Nation's counties to become a third party in this educational endeavor.

Today, this educational system includes professionals in each of the Nation's 1862 land-grant colleges and universities (in the 50 States, Puerto Rico, the Virgin Islands, Guam, Northern Marianas, American Samoa, Micronesia, and the District of Columbia) and in Tuskegee University and sixteen 1890 land-grant colleges or universities.

■ **Intramural Agricultural Research: Agricultural Research Service**

The Agricultural Research Service is the primary intramural research agency in USDA. It conducts a balanced program of basic and applied research that concentrates on problems that are national or regional in scope.

The agency maintains a network of geographically dispersed national and overseas laboratories, providing USDA with the ability to:

- Perform long-term research on high-risk problems,
- Respond to both stable and changing technical goals,

- Ensure research program accountability, through its organizational structure, and
- Form, disband, or coordinate interdisciplinary research teams (often at different sites) from a large, diverse scientific workforce.

Areas of research emphasis for ARS correspond to high-priority problems identified by scientists, internal program evaluations, users, new legislation, appropriations, regulatory and action agencies, and executive branch initiatives. Research objectives include the following:

Soil, Air, and Water

ARS is focusing on the increasing critical issues of environmental degradation. Currently, the agency is working on:

- Improved production systems that will reduce the degradation of water quality by agricultural chemicals and control erosion when crop residues are low,
- Strategies for off-site control of chemical buildup in ground water,
- Methods for assessing the effect of potential global climate change on water and energy flows, water resources, and the health and sustainability of agricultural ecosystems,
- Methods for quantifying agriculture's contribution to changes in greenhouse gases,
- Ways to facilitate conservation tillage, and
- Evaluation and improvement of no-till and other conservation tillage and residue management systems—to increase soil organic matter, infiltration, and soil biological activity and to reduce runoff, erosion, evaporation, and drought damage.

Plant Productivity

ARS focuses on the traditional concern of enhancing plant yields, including such projects as:

- Enhancement of plant germplasm by genome manipulation at the molecular level, and enhancement of plant genetic resources to overcome productivity barriers in major crops,
- Technologies for controlling fundamental biological processes relating to productivity, market quality, and production costs,
- Long- and short-term acquisition and preservation of plant germplasm,
- Detection at the molecular level of pathogens in propagative material,
- Methods for nondestructive testing of seed viability and composition and for environmentally safe pest control with acceptable health risk,
- Management systems for sound ecosystem maintenance and water use on important range, pasture, and crop lands,
- Control of weed and plant diseases,
- Area-wide control of high-priority pests,
- Development of a relational database for the National Plant Germplasm System, and
- Computer simulation models for growth and development of economically important crops and weeds.

Animal Productivity

ARS projects to improve animal productivity seek ways to:

- Reduce mortality and other losses from disease and parasites,
- Improve genetic resistance to diseases and parasites,
- Use biological methods to control parasites,
- Control bacteria and parasites in live animals, especially for diseases that are communicable to humans,
- Increase the genetic capacity of animals for greater production,
- Evaluate behavioral, physiological, and productivity indicators of animal well-being,
- Understand the physiological processes involved in feed intake and metabolism, and the mechanisms by which chemical and physical composition of feed can limit nutrient availability,
- Make nondestructive repeated measurements of body composition, and
- Use animal wastes and reduce waste contamination of surface and ground water.

Commodity Conversion and Delivery

In efforts to improve the processing of agricultural commodities, ARS is seeking:

- Means to prevent or eliminate foodborne microorganisms in animal products, prevent mycotoxins in food and feed products, eliminate insect and disease trade barriers that limit agricultural exports, meet quality market requirements (physical, sanitary, performance) for various food products, and extend shelf life while retaining high quality,
- Methods for rapid, objective analysis of marketing safety and quality characteristics,
- Technologies for converting agricultural commodities to value-added industrial products, alternative fuels, and new fiber, leather, feed, and food products,
- Process treatments to enhance food safety, minimize residues or additives, and retain quality, and
- Alternative processing methods that are more environmentally benign.

Human Nutrition and Well-Being

ARS human nutrition research is seeking:

- Methods to determine composition of commonly consumed foods and to change food production and processing systems to improve the nutritional quality of foods,
- Better understanding of the role that dietary components play in weight maintenance and the risk of chronic diseases,
- Identification of adequate and safe ranges of nutrient and calorie intake, and
- Explanation of the molecular and cellular bases of human nutrition.

Human Nutrition Information

ARS also helps to promote the nutritional well-being of Americans by providing data that contribute to development of nutrition policy for the Nation, educating Americans on that policy, maintaining a national data bank on the nutrient content of foods, and monitoring the food consumption of the population. ARS conducts applied research on what foods Americans buy and eat, what nutrients are in those foods, and how we can make informed food choices.

Research findings are used in part to help provide policy guidance for food assistance programs, food labeling, and food safety; food formulation, production, and marketing; and nutrition education programs.

Food Consumption

ARS monitors the food and nutrient content of the American diet as part of the National Nutrition Monitoring and Related Research Program. A series of food consumption surveys, called the *Continuing Survey of Food Intakes by Individuals*, measures what Americans eat and drink. USDA has studied food consumption since 1936.

■ Survey Facts (since 1989)

- On average, Americans obtain about 34 percent of their calories from fat, which is above the 30 percent limit recommended in the Dietary Guidelines published by the Departments of Agriculture and Health and Human Services.
- About 15 percent of elementary school-aged children and 30 percent of teens ate no fruit during a 3-day survey period.
- Young men (20 to 29 years) have the highest cholesterol intake—an average of 357 milligrams per day. The lowest intake for adults is by women 70 years old and older—194 milligrams. Some health authorities recommend that dietary cholesterol be limited to an average of 300 milligrams or less per day.

Nutrition Knowledge and Attitudes

The *Diet and Health Knowledge Survey*, a follow-up to the *Continuing Survey of Food Intakes by Individuals*, measures consumers' awareness, understanding, and attitudes about dietary guidance and the relationship between diet and health. Pairing these two surveys provides a unique resource for studying how knowledge and attitudes about diet and health determine what we eat.

■ **Diet and Health Knowledge Survey Facts**

Main meal planners seem to know that what they eat can affect their health, but not why.

- Almost 90 percent agree that "What you eat can make a big difference in your chance of getting a disease, like heart disease or cancer."
- About 75 percent know that health problems are related to how much fat a person eats.
- Fewer still—60 percent or less—know about health problems related to saturated fat, calcium, fiber, and iron.

Peoples' perceptions about their own diets don't always match reality.

- About 40 percent of main meal planners think their diets are "about right" in fat, but only 24 percent of those surveyed have fat intakes that meet the recommendation of 30 percent of calories or less.
- Almost half think their diets are "about right" regarding saturated fat, but only 25 percent have intakes that are actually "about right" (less than 10 percent of calories).

Food Composition

ARS collects and publishes the most comprehensive data on the nutrient composition of foods. Information on the amounts of about 70 components of the thousands of foods Americans consume is processed and stored in the National Nutrient Data

■ **Food Composition Facts**

- USDA's first table of food composition was published a century ago. It showed the amount of protein, fat, carbohydrate, ash (minerals), and calories for about 200 food items. Today, the National Nutrient Data Bank includes over 70 food components in about 5,200 food items, totalling over a third of a million records of nutrient data.
- Nutrient composition of foods changes over time. New animal breeds, new feeding practices, new varieties, and even new methods of analysis can dramatically affect nutrient composition. Increased consumption of ethnic foods, fast foods, and "yuppie" foods, as well as the increased consumer demand for convenient, more healthful foods, has increased the need for extensive nutrient analysis.

Bank. Food composition data are continually expanded and updated. Data are published in a 21-volume handbook, *Composition of Foods: Raw, Processed, Prepared*. This handbook is designed for researchers and nutrition and health professionals. Nutrient data are also published in popular publications and are available in machine-readable forms.

Dietary Guidance and Nutrition Education

ARS nutrition education programs assess the dietary status of Americans and the factors that influence that status. Nutrition education activities also include research to establish dietary principles and development of research-based dietary guidance materials, including food label education. ARS promotes the *Dietary Guidelines for Americans* through nutrition education materials. These materials are communicated to the general public, to groups at nutritional risk, and to nutrition and health educators.

The Dietary Guidelines

The Dietary Guidelines for Americans are seven recommendations for a healthful diet. Developed by the U.S. Departments of Agriculture and Health and Human Services, the guidelines are the best and most current advice for healthy Americans 2 years and older. The guidelines are:

- *Eat a variety of foods,*
- *Maintain a healthy weight,*
- *Choose a diet low in fat, saturated fat, and cholesterol,*
- *Choose a diet with plenty of vegetables, fruits, and grain products,*
- *Use sugars only in moderation,*
- *Use salt and sodium only in moderation, and*
- *If you drink alcoholic beverages, do so in moderation.*

The Dietary Guidelines are reviewed by scientists and revised every 5 years. The next revision is scheduled for 1995.

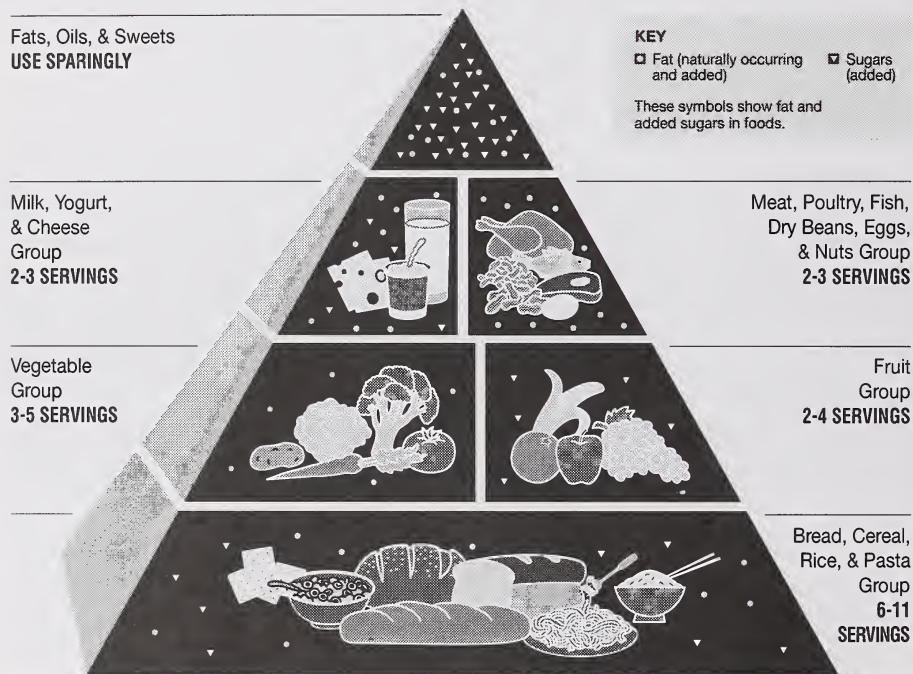
For more information, contact Director, Agricultural Research Service Information Staff, (301) 344-2340.

Figure 26.

The Food Guide Pyramid

The Food Guide Pyramid was developed in 1992 to show how to put the Dietary Guidelines into action. It is based on USDA's research on what foods Americans eat, what nutrients are in these foods, and how to make the best food choices.

Use the Food Guide Pyramid to eat better every day...the Dietary Guidelines way. Start with plenty of Breads, Cereals, Rice, and Pasta; Vegetables; and Fruits. Add two to three servings from the Milk group and two to three servings from the Meat group. Each of these food groups provides some, but not all of the nutrients you need. No one food group is more important than another—for good health you need them all. Go easy on the fats, oils, and sweets—the foods in the small tip of the Pyramid.



To order a copy of *The Food Guide Pyramid* booklet, send a \$1.00 check or money order made out to the Superintendent of Documents to the Consumer Information Center, Department 117-Z, Pueblo CO 81009.

Figure 27.

How Many Servings Do You Need Each Day?

	<i>Many women and some older adults</i>	<i>Children, teen girls, active women, most men</i>	<i>Teen boys and active men</i>
Calorie level	about 1,600	about 2,200	about 2,800
	<i>Number of Servings</i>		
Bread group	6	9	11
Vegetable group	3	4	5
Fruit group	2	3	4
Milk group	2-3*	2-3*	2-3*
Meat group	2, for a total of 5 ounces	2, for a total of 6 ounces	3, for a total of 7 ounces
Grams of total fat that provide 30% of calories	53	73	93
Grams of saturated fatty acids that provide 10% of calories	18	24	31
Total added sugars (teaspoons)	6	12	18

* Women who are pregnant or breastfeeding, teenagers, and young adults to age 24 need 3 servings.

■ Cooperative State Research Service

The Cooperative State Research Service (CSRS) is USDA's principal link to the university system in the United States for carrying out agricultural research and for higher education programs in the food and agricultural sciences. CSRS participates in a nationwide system of agricultural research program planning and coordination among State institutions, USDA, the agricultural industry, and consumer organizations.

CSRS works under the Hatch Act of 1887, as amended, and many other authorities to encourage and assist State institutions in carrying out a comprehensive program of agricultural research. CSRS works principally in partnership with:

- 130 Colleges of Agriculture
- 59 Agricultural Experiment Stations
- 63 Schools of Forestry
- 17 1890 land-grant Institutions and Tuskegee University
- 27 Colleges of Veterinary Medicine
- 42 Schools and Colleges of Home Economics
- Other eligible institutions.

Extramural Agricultural Research

In partnership with CSRS, the State Agricultural Experiment Station system (SAES), based at land-grant universities, performs about 68 percent of the food, agriculture, and natural resource research done in the United States and its territories. This research is conducted at locations in all 50 States and in the District of Columbia, Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, Micronesia, and the Northern Mariana Islands.

CSRS provides administrative oversight to cooperating institutions to ensure that research funded by USDA focuses on issues of national importance. CSRS and the SAES are committed to a balanced program of fundamental and applied research in these six areas:

Environment and natural resources. Research in this area focuses on conserving air, soil, and water resources; managing ecosystems to conserve biodiversity; recovering and using waste resources; and developing decision systems in resource management.

Nutrition, food safety, and health. Research in this area focuses on improving food safety, identifying optimal nutrition for individual health, designing foods for healthy diets, and promoting healthy food choices.

Processes and products. Research in this area concentrates on finding beneficial uses for otherwise-wasted byproducts of processing, improving food quality and value, and developing new or better food products.

Economic and social issues. This research focuses on strengthening communities and improving agricultural and rural economies.

Animal systems. Research in this area concentrates on developing sustainable animal production systems, improving the genetic diversity and biological performance of animals, increasing the quality of food products derived from animals, and improving animal health and well-being.

Plant systems. Research in this area focuses on protecting plants for sustained productivity, developing alternative systems of plant management, and using genetics to improve plants.

Investments in land-grant research have produced such results as hybrid crops, specially adapted animals, labor-saving equipment, improved cultivation practices, vaccines against diseases that threaten human and animal life, and chemicals that improve growth and protect plants from pests. Research in the SAES has led to major breakthroughs in preserving the environment and addressing rural problems. These developments from land-grant research have helped to increase our standard of living and provide a wide variety of foods and fiber at reasonable prices.

Higher Education

CSRS is also the Federal Government's lead agency for supporting higher education in the food and agricultural sciences. Through higher education programs, USDA supports and encourages efforts to provide the expertise needed by the Nation's modern, high-technology, knowledge-based food and agricultural system.

Grants for Research, Higher Education

CSRS funds research through partnership formula funds which are distributed on a formula basis to State Agricultural Experiment Stations, through the National Research Initiative Competitive Grants Program, and through a variety of matching grants for higher education.

Partnership formula funds are authorized under a number of legislative authorities that allow flexibility to address varied research needs. These funds are distributed on a formula basis to the agricultural experiment stations of the 50 States, the District of Columbia, and U.S. territories. Matching with non-Federal funds is often required.

The National Research Initiative Competitive Grants Program supports agricultural research in high-priority areas to solve important agricultural problems. These grants complement the ongoing research efforts of USDA and other traditional agricultural research institutions by encouraging the participation of outstanding research scientists throughout the entire U.S. scientific community.

Higher Education Grants administered by CSRS support high-priority programs to improve education and develop outstanding scientific and professional expertise at colleges and universities in the United States. These grants are competitively awarded, and require matching funds from non-Federal sources. The **National Needs Graduate Fellowships Grants** fund recruitment and support of doctoral students for 3 years of training in specialties where expertise is scarce. The **Higher Education Challenge Grants** are awarded to colleges and universities for curriculum development. The **1890 Institution Capacity Building Grants** are designed to advance research and teaching capacities of the 1890 Land-Grant Colleges and Universities and Tuskegee University.

New and Emerging Programs

Several CSRS programs concentrate on problems of national and local interest beyond the normal emphasis under the formula programs.

The **Sustainable Agriculture Research and Education Program** encourages research designed to increase knowledge of integrated systems of plant and animal production practices having site-specific applications.

The **Small Business Innovation Research Program** funds competitively awarded grants to science-based small business firms to support research on forests and related resources; plant production and protection; animal production and protection; air, water, and soils; food science and nutrition; rural and community development; aquaculture; and industrial applications.

The **Critical Agricultural Materials Program** coordinates research, development, and transfer of technologies that provide materials from agricultural crops which are of strategic or industrial importance.

The **Aquaculture Centers** perform aquacultural research, extension, and demonstration projects.

The **Biotechnology Risk Assessment Research Grants Program** funds competitive grants to assess the risks of biotechnology research and regulation.

The **Facilities Program** provides grants to States and eligible institutions to build or equip facilities for agricultural research, extension, and teaching.

Rangeland Research Grants are awarded to colleges and universities for rangeland research.

How to get information from the Cooperative State Research Service

For additional information about USDA's extramural research and education programs, or about the programs of the Cooperative State Research Service, contact the Director of Communications, USDA-Cooperative State Research Service, Ag. Box 2208, Washington, DC 20250-2208, telephone (202) 401-4268; FAX (202) 205-9775

■ The National Agricultural Library

The National Agricultural Library (NAL) is one of three national libraries of the United States (the others are the Library of Congress and the National Library of Medicine).

NAL was established as part of USDA under legislation signed by President Abraham Lincoln. The Organic Act of 1862 set a mission "to acquire and to diffuse among the people of the United States useful information on subjects connected with agriculture...[and to] procure and preserve all information concerning agriculture."

The library is located in Beltsville, MD, on the grounds of USDA's Beltsville Agricultural Research Center.

The Collection

NAL's collection totals nearly 2.2 million volumes, making NAL the largest agricultural library in the world, with about 48 miles of bookshelves in the 14-story NAL building. In addition to books, the NAL collection includes journals, photographs, films, slides, posters, research reports, theses, maps, patents, computer software, laser discs, and artifacts. The library also receives about 22,000 periodicals each year. Items date back to the seventeenth century and include materials in 75 different languages. The collection grows by about 20,000 volumes each year.

Access to the NAL collection is provided through AGRICOLA, the Library's bibliographic database. AGRICOLA (AGRICultural OnLine Access) is available online or on compact disc and contains over 3 million citations to agricultural literature. NAL, aided by the land-grant university community, adds thousands of records to the database each year.

The Staff

NAL's staff of about 210 people includes librarians, information specialists, and computer specialists. A number of staff members work at 11 specialized information centers that provide information on subjects of particular concern to world agriculture, including agricultural trade and marketing, alternative farming systems, animal welfare, aquaculture, biotechnology, food and nutrition, plant genomes, rural development and health, technology transfer, water quality, and youth development.

The Customers

The Library is viewed nationally and internationally as the premiere world resource for agricultural information. NAL serves Federal, State, and local government scientists and officials; farmers; professors, researchers, and students at universities and colleges; private scientific and agricultural organizations; business leaders; the news media; the general public; and, more and more in recent years, foreign agricultural organizations.

NAL is the coordinator and primary resource for a nationwide network of State land-grant university libraries and USDA research libraries. Together, NAL and these libraries form a system that allows interlibrary loan of agricultural materials nationwide.

The Electronic Library

NAL works with the land-grant universities in using technology to improve access to the Nation's agricultural knowledge. These technologies—including CD-ROMs, laser discs, computer networks, and optical scanning—also help in the Library's ongoing efforts to preserve older, rapidly deteriorating agricultural materials. The National Agricultural Text Digitizing Program is an example. Working with the land-grant institutions since 1986, NAL has electronically scanned materials on agricultural subjects and placed them on compact discs, which are then distributed throughout the land-grant system and to locations worldwide. This is a significant step toward NAL's goal of becoming an "electronic library," an institution that provides access to information, regardless of location, through computers and telecommunications technology. Subjects covered on the discs include aquaculture, acid rain, Agent Orange, selected papers of George Washington Carver, and home landscaping.

Optical discs are another technology NAL uses. NAL has placed over 50,000 photographs and other images from USDA collections, including those of the Forest Service, on two 12-inch laser videodiscs. Specific photographs can be located in seconds through software that allows "keyword" searching.

NAL also manages software demonstration centers that allow NAL users to review and evaluate hundreds of computer software programs related to food, nutrition, and agriculture.

Information Contacts

Information on NAL products and services is available through NAL's electronic bulletin board ALF (Agricultural Library Forum), which can be reached on (301) 504-6510, -5111, -5496, or -5497.

The Library is open from 8 a.m. to 4:30 p.m., eastern time, Monday through Friday, except on Federal holidays. The NAL reference desk can be reached at (301) 504-5479. Internet access to NAL reference services is also available. The Internet address is "agref@nalusda.gov"

■ Economic Research Service

USDA established the Economic Research Service (ERS) in 1961 principally under the authority of the Agricultural Marketing Act of 1946 (7 U.S.C. 1621–1627).

ERS produces economic and other social science information to serve the general public and to help Congress and the Administration develop, administer, and evaluate agricultural and rural policies and programs. The wide range of topics covered by ERS includes:

- U.S. and world agricultural production and demand for production resources, agricultural commodities, and food and fiber products,
- Costs of and returns to agricultural production and marketing,
- Economic performance of U.S. agricultural production and marketing,
- Effects of Government policies and programs on farmers, rural residents and communities, natural resources, and the public, and
- Organization and institutions of U.S. and world agricultural production and marketing systems, natural resources, and rural communities.

ERS-produced information is available to the public through research monographs, situation and outlook reports, standardized data products in electronic media, professional and trade journals (including *The Journal of Agricultural Economics Research*), magazines (including *Agricultural Outlook*, *FoodReview*, *Rural Conditions and Trends*, and *Rural Development Perspectives*), radio, television, newspapers, and frequent participation of ERS staff at various public forums.

ERS has four principal functions:

- Research,
- Situation and outlook analysis,
- Staff analysis, and
- Development of economic and statistical indicators.

Research, together with economic and statistical indicators, provides the knowledge and the data base for the situation and outlook and staff analysis functions. The products of the situation and outlook analysis are periodic reports that analyze the current situation and forecast the short-term outlook for major agricultural commodities, agricultural exports, agricultural finance, agricultural resources, and world agriculture. Staff analysis entails assessments of issues requiring policy decisions by the Administration and Congress.

■ National Agricultural Statistics Service

An orderly production and marketing system depends on an accurate, up-to-the-minute accounting of potential output, available stocks, and the many other factors that influence agriculture. The mission of the National Agricultural Statistics Service (NASS) is to serve the United States, its agriculture, and its rural communities by providing meaningful, timely, accurate, and objective statistical information and services.

Through its Washington, DC, headquarters and 45 field offices serving all 50 States, NASS publishes hundreds of reports detailing production and prospects for crops, livestock, dairy, and poultry each year. Other releases focus on stocks, prices, labor, weather, chemical use, and similar items that concern farmers, ranchers, and others involved in, or affected by, agriculture.

The information is geared toward producers and can help them plan their planting, feeding, breeding, and marketing programs. The data also are used by agricultural organizations, services, and businesses; trade groups; and financial institutions to determine demand for inputs, resources, transportation, and storage-related crop and livestock products.

Most estimates are based on information gathered from producers. They are surveyed through personal or telephone interviews or through mail questionnaires. For major crops, such as corn, wheat, soybeans, or cotton, special on-the-spot counts and measurements of plant development are made in fields across the Nation. Other estimates are based on surveys of grain elevators, hatcheries, and other agribusinesses.

All the data collected from these varied sources are summarized by the NASS office serving that State and sent to the agency's Agricultural Statistics Board in Washington, DC, which determines and issues the official estimates for the State and the Nation.

How To Get More Information

All NASS reports are released at scheduled times, and the information is made readily available to the public in a variety of formats. Printed reports are available through the Agricultural Statistics Board and the Government Printing Office. The reports are also available electronically through the Department's Computerized Information Delivery System. In addition, selected reports are available through the ERS/NASS electronic bulletin board or through the Internet. For more information, call (202) 720-7017 or (800) 999-6779.

■ World Agricultural Outlook Board

The World Agricultural Outlook Board is USDA's focal point for forecasts and projections of global commodity markets. Each month, the Board brings together interagency committees in the United States and abroad. The committees also clear agricultural forecasts published by other USDA agencies. This teamwork assures that the Department's forecasts are objective and consistent.

Because the weather is vital to crop forecasts, specialists from the Board work side by side with weather forecasters from the National Oceanic and Atmospheric Administration (NOAA) to monitor the weather and assess its effects on crops. In related work, the Board also coordinates departmentwide activity on long-term economic projections, remote sensing, and climate.

Appendix

How to Get Information from the U.S. Department of Agriculture

This directory lists sources of information in the U.S. Department of Agriculture and its various agencies. It also includes names of the various Freedom of Information Act officers. When seeking information, contact the person in charge of information on the subject matter in which you are interested. When uncertain about the source, call *USDA Information at 202-720-2791*.

Most of the electronic mail addresses of offices or individuals shown are on the Federal FTSMail network provided by AT&T. The e-mail addresses are those used by those on the FTSMail system. Those using the Internet can address FTSMail users by sending to USERNAME@ATTMAIL.COM (user name includes A and 2 digit number preceding name). Other public or private systems need to find out the addressing scheme to send messages to those on the FTSMail (AT&T) system.

■ Office of Communications

OC is integral to the historical and current mission of the U.S. Department of Agriculture. This office coordinates and assists with the flow of public information from USDA program agencies, reviewing all publications and audiovisuals, evaluating new information technology, maintaining availability of current information from the Office of the Secretary, ensuring operation of adequate and appropriate channels for dissemination of information to the public, and optimizing public access to USDA information through the news media. OC administers USDA's computerized information delivery (CID) service and AgNewsFax service, and coordinates the public affairs electronic mail network through the FTSMail and other e-mail systems. OC also provides departmental coordination of responses under the Freedom of Information Act, Privacy Act, and its amendment, Computer Matching Act.

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■ Departmental Staff Offices

Office of Civil Rights Enforcement

OCRE provides leadership, direction and coordination for USDA's civil rights programs. OCRE processes all employment discrimination complaints and program delivery discrimination complaints; coordinates departmental special emphasis programs; conducts agency civil rights (EEO and Program Delivery) compliance reviews; and develops departmental regulations and policy directives on civil rights.

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Office of Budget and Program Analysis

OBPA provides direction and administration of the Department's budgetary functions; reviews program and legislative proposals for program and budget related implications; analyzes program and resource issues and alternatives; and provides departmentwide coordination for and participation in the presentation of budget related matters to the committees of Congress, the press and publics. OBPA also provides departmentwide coordination of the preparation and processing of the legislative program and legislative reports, and departmentwide coordination and processing of regulations.

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Office of Finance and Management

OFM, under the direction of USDA's Chief Financial Officer, provides direction, leadership and coordination of USDA programs in finance, accounting, federal assistance, occupational safety and health, productivity, management improvement and administrative systems; oversees activities of the National Finance Center and fulfills the comptrollership function of the working capital fund; and provides budget, accounting and fiscal services to USDA staff offices and the Office of the Secretary.

Freedom of Info Act Officer 202-720-1221 Rm4088-S Washington, DC 20250
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Office of the General Counsel

OGC provides legal counsel and services to the Secretary of Agriculture and all USDA agencies.

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Office of Information Resources Management

OIRM develops, recommends and disseminates departmental information resources management principles, policies, standards, guidelines and regulations; designs, develops, approves, implements and reviews systems, processes, work methods and techniques to improve management of USDA information technology resources and operational effectiveness; provides telecommunications and automated data processing services to USDA agencies and staffs; and oversees the Info Share Program.

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Office of Inspector General

OIG conducts and supervises audits and investigations relating to USDA's programs and operations; provides leadership and coordination and recommends policies for activities designed to prevent and detect fraud and abuse and to promote economy, efficiency and effectiveness in USDA programs and operations; and keeps the Secretary and Congress fully informed of problems and deficiencies relating to administration of USDA programs, operations and actions designed to correct such problems and deficiencies.

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Office of Operations

OO provides overall general direction, leadership and coordination of real and personal property, procurement and mail functions, and operates certain consolidated administrative activities in the department.

Freedom of Info Act Officer	202-720-5729	Rm1550-S	Washington, DC 20250
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Office of Personnel

OP provides leadership and coordination of the personnel management program of the department and promotes innovation for USDA human resources management programs and initiatives.

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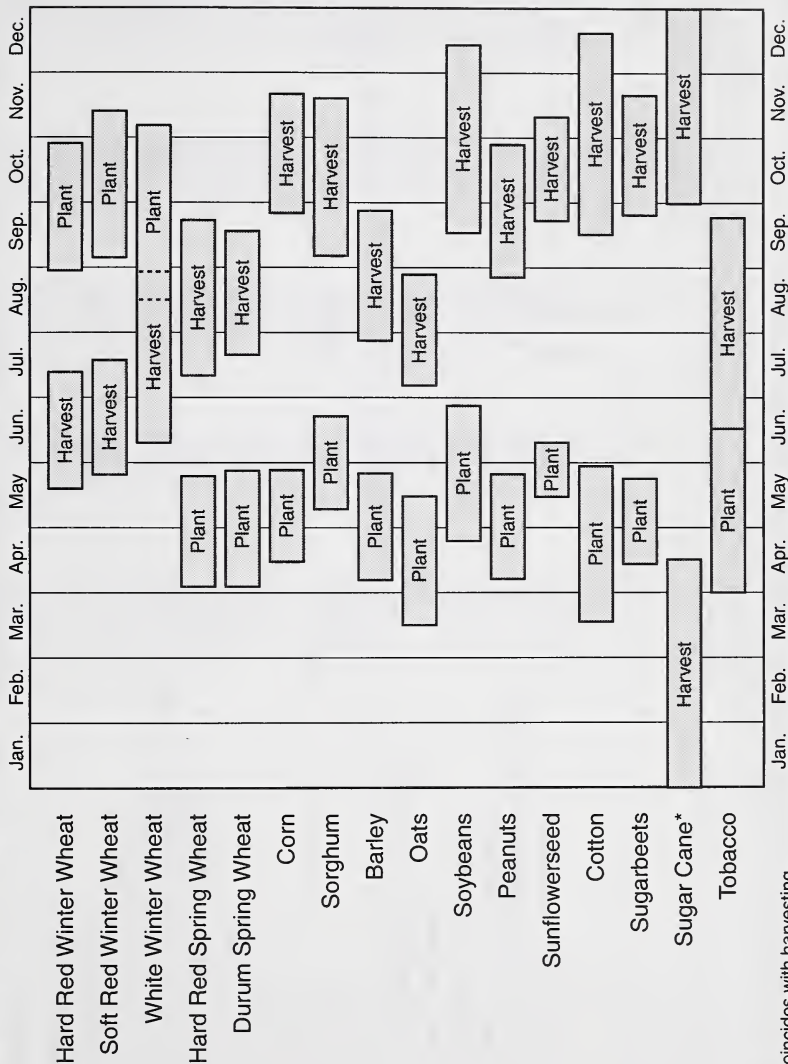
Office of Small and Disadvantaged Business Utilization

OSDBU provides leadership, direction and coordination for USDA's programs for small and disadvantaged businesses and competition advocacy

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Figure A-1.

Planting and Harvesting Calendar for Most Major U.S. Crop Areas¹



*Planting coincides with harvesting.

¹Represents areas where production is concentrated, but not full spectrum of planting and harvesting periods for each crop.

Table A-1.

Number of farms, and net cash income, by value of sales class, 1992

Item	\$1,000,000 and over	\$500,000 to \$999,999	\$250,000 to \$499,999	\$100,000 to \$249,999	\$40,000 to \$99,999	\$20,000 to \$39,999	Less than \$20,000
Thousands							
Number of farms	15	32	76	247	338	254	1,132
Total:							
Gross cash income	39,532	24,476	29,917	46,032	29,066	9,434	9,432
Cash receipts from marketings	38,107	22,922	27,386	40,848	25,543	8,153	8,209
Direct Government payment commodities	2,330	3,745	6,049	10,281	6,321	1,677	854
Price support only commodities	487	1,163	2,818	4,353	2,601	761	446
Nonsupported commodities	35,290	18,013	18,518	26,214	16,621	5,715	6,909
Government payments	501	813	1,612	3,175	1,965	720	383
Farm-related income	924	742	919	2,010	1,557	561	840
Cash expenses	24,033	15,412	19,827	31,323	20,051	7,490	12,031
Net cash income	15,499	9,064	10,090	14,709	9,014	1,945	-2,599
Percent of total:							
Number of farms	0.7	1.5	3.6	11.8	16.2	12.1	54.1
Gross cash income	21.0	13.0	15.9	24.5	15.5	5.0	5.0
Cash receipts from marketings	22.3	13.4	16.0	23.9	14.9	4.8	4.8
Direct Government payment commodities	7.5	12.0	19.4	32.9	20.2	5.4	2.7
Price support only commodities	3.9	9.2	22.3	34.5	20.6	6.0	3.5
Nonsupported commodities	27.7	14.2	14.5	20.6	13.1	4.5	5.4
Government payments	5.5	8.9	17.6	34.6	21.4	7.9	4.2
Farm-related income	12.2	9.8	12.2	26.6	20.6	7.4	11.1
Cash expenses	18.5	11.8	15.2	24.1	15.4	5.8	9.2
Net cash income	26.9	15.7	17.5	25.5	15.6	3.4	-4.5

—continued

Table A-1 continued.

Number of farms, and net cash income, by value of sales class, 1992

<i>Item</i>	<i>\$1,000,000 and over</i>	<i>\$500,000 to \$999,999</i>	<i>\$250,000 to \$499,999</i>	<i>\$100,000 to \$249,999</i>	<i>\$40,000 to \$99,999</i>	<i>\$20,000 to \$39,999</i>	<i>Less than \$20,000</i>
<i>Dollars</i>							
Per farm operation:¹							
Gross cash income	2,716,078	760,290	391,842	186,519	85,924	37,200	8,332
Cash receipts from marketings	2,618,170	712,004	358,692	165,511	75,511	32,149	7,252
Direct Government payment commodities	160,083	116,343	79,234	41,657	18,687	6,612	754
Price support only commodities	33,451	36,121	36,911	17,636	7,690	3,000	394
Nonsupported commodities	2,424,635	559,541	242,547	106,218	49,134	22,537	6,103
Government payments	34,436	25,241	21,119	12,864	5,809	2,840	338
Farm-related income	63,473	23,045	12,030	8,144	4,604	2,211	742
Cash expenses	1,651,208	478,731	259,681	126,920	59,276	29,532	10,628
Net cash income	1,064,870	281,559	132,160	59,600	26,648	7,667	-2,296

¹Farm operations may have several households sharing in the earnings of the business (for example, partners or shareholders in farm corporations). The number of households per farm tends to increase as sales per farm increase.

Number of farms, by value of sales class, 1978-92

Year	\$1,000,000 or more	\$500,000 to \$999,999 ¹	\$250,000 to \$499,999 ²	\$100,000 to \$249,999 ³	\$40,000 to \$99,999	\$20,000 to \$39,999	Less than \$20,000	All farms
<i>Thousands</i>								
1978	NA	17	60	135	347	292	1,585	2,436
1979	NA	20	71	151	351	287	1,558	2,437
1980	NA	24	81	166	355	282	1,532	2,440
1981	NA	27	92	182	359	276	1,504	2,440
1982	NA	30	63	232	358	267	1,457	2,407
1983	NA	23	64	240	352	289	1,412	2,379
1984	NA	32	77	230	345	248	1,401	2,334
1985	NA	27	76	223	328	244	1,394	2,293
1986	NA	30	70	217	305	247	1,381	2,250
1987	10	19	59	212	316	235	1,361	2,213
1988	12	21	60	218	312	248	1,327	2,197
1989	13	26	67	206	315	265	1,278	2,171
1990	16	27	64	214	306	259	1,254	2,140
1991	14	32	79	244	349	260	1,127	2,105
1992	15	32	76	247	338	254	1,132	2,094
<i>Percentage distribution</i>								
1978	NA	0.7	2.5	5.6	14.2	12.0	65.1	100.0
1979	NA	0.8	2.9	6.2	14.4	11.8	63.9	100.0
1980	NA	1.0	3.3	6.8	14.5	11.6	62.8	100.0
1981	NA	1.1	3.8	7.4	14.7	11.3	61.7	100.0

—continued

Table A-2 continued.

Number of farms, by value of sales class, 1978-92

Year	\$1,000,000 or more	\$500,000 to \$999,999 ¹	\$250,000 to \$499,999 ²	\$100,000 to \$249,999 ³	\$40,000 to \$99,999	\$20,000 to \$39,999	Less than \$20,000	All farms
	Percentage distribution							
1982	NA	1.2	2.6	9.6	14.9	11.1	60.5	100.0
1983	NA	0.9	2.7	10.1	14.8	12.2	59.3	100.0
1984	NA	1.4	3.3	9.9	14.8	10.6	60.0	100.0
1985	NA	1.2	3.3	9.7	14.3	10.7	60.8	100.0
1986	NA	1.3	3.1	9.7	13.5	11.0	61.4	100.0
1987	0.5	0.9	2.7	9.6	14.3	10.6	61.5	100.0
1988	0.5	1.0	2.7	9.9	14.2	11.3	60.4	100.0
1989	0.6	1.2	3.1	9.5	14.5	12.2	58.9	100.0
1990	0.7	1.3	3.0	10.0	14.3	12.1	58.6	100.0
1991	0.7	1.5	3.8	11.6	16.6	12.4	53.5	100.0
1992	0.7	1.5	3.6	11.8	16.2	12.1	54.1	100.0

NA = not available. ¹For 1978-86, data are for sales class \$500,000 or more. ²For 1978-81, data are for sales class \$200,000 to \$499,999.³For 1978-81, data are for sales class \$100,000 to \$199,999.

Table A-3.

Direct Government payments, by program, 1950-92¹

Year	Feed grains	Wheat	Rice	Cotton	Wool	Conser- vation ²	Miscel- laneous ³	Total
<i>Million dollars</i>								
1950	np	np	np	np	np	246	37	283
1951	np	np	np	np	np	246	40	286
1952	np	np	np	np	np	242	33	275
1953	np	np	np	np	np	181	32	213
1954	np	np	np	np	np	217	40	257
1955	np	np	np	np	np	188	41	229
1956	np	np	np	np	54	220	280	554
1957	np	np	np	np	53	230	732	1,015
1958	np	np	np	np	14	215	859	1,088
1959	np	np	np	np	82	233	367	682
1960	np	np	np	np	51	223	429	703
1961	772	42	np	np	56	236	387	1,493
1962	841	253	np	np	54	230	368	1,746
1963	843	215	np	np	37	231	370	1,696
1964	1,163	438	np	39	25	236	278	2,179
1965	1,391	525	np	70	18	224	235	2,463
1966	1,293	679	np	773	34	231	267	3,277
1967	865	731	np	932	29	237	284	3,078
1968	1,366	747	np	787	66	229	268	3,463
1969	1,643	858	np	828	61	204	199	3,793
1970	1,504	871	np	919	49	208	166	3,717
1971	1,054	878	np	822	69	173	149	3,145

—continued

Table A-3 continued.

Direct Government payments, by program, 1950-92¹

Year	Feed grains	Wheat	Rice	Cotton	Wool	Conser- vation ²	Miscel- laneous ³	Total
1972	1,845	856	np	813	110	198	140	3,962
1973	1,142	474	np	718	65	72	136	2,607
1974	101	70	np	42	⁴	192	125	530
1975	279	77	np	138	13	193	107	807
1976	196	135	⁴	108	39	209	47	734
1977	187	887	130	89	5	328	192	1,818
1978	1,172	963	3	127	27	239	499	3,030
1979	494	114	59	185	33	197	294	1,376
1980	382	211	2	172	28	214	276	1,285
1981	243	625	2	222	35	201	605	1,933
1982	713	652	156	800	46	179	946	3,492
1983	1,346	864	278	662	84	188	5,874	9,296
1984	367	1,795	192	275	118	191	5,493	8,431
1985	2,861	1,950	577	1,106	98	189	924	7,705
1986	5,158	3,500	423	1,042	112	254	1,325	11,814
1987	8,490	2,931	475	1,204	144	1,531	1,972	16,747
1988	7,219	1,842	465	924	117	1,607	2,306	14,480
1989	3,141	603	671	1,184	81	1,771	3,436	10,887
1990	2,701	2,311	465	441	96	1,898	1,386	9,298
1991	2,649	2,166	550	407	154	1,858	431	8,215
1992	2,499	1,403	512	751	188	1,899	1,916	9,168

np = no program. ¹Components may not add due to rounding. Includes both cash payments and payments-in-kind (PIK). ²Includes Great Plains and other conservation programs. ³Through 1970, total amounts are for Soil Bank program, which was discontinued in 1971. Starting with 1971, amounts include all other programs. ⁴Less than \$500,000.

Table A-4.

Land utilization, by States, 1987

State	Cropland		Used only for pasture	Grassland pasture ^c 1,000 acres	Forest land ^a	Special use areas ^d	Other land	Total land area
	Used for crops ^b	Idle						
AL	2,370	977	1,456	1,935	21,659	1,376	2,718	32,491
AK	31	40	6	1,209	88,643	142,520	132,884	365,333
AZ	1,056	351	140	41,504	17,257	9,849	2,488	72,645
AR	6,698	1,552	1,938	2,950	16,896	1,368	1,928	33,330
CA	8,689	1,460	1,338	21,833	36,441	14,769	15,501	100,031
CO	8,684	2,058	1,170	27,898	18,837	4,795	2,859	66,301
CT	152	15	40	47	1,776	311	777	3,118
DE	493	46	10	12	388	113	175	1,237
DC	0	0	0	0	0	0	40	40
FL	2,300	560	1,004	5,792	16,260	4,505	4,237	34,658
GA	3,747	1,539	1,145	1,895	23,402	1,625	3,803	37,156
HI	162	141	41	1,082	1,318	806	562	4,112
ID	5,102	1,045	816	19,943	17,767	5,278	2,793	52,744
IL	20,167	4,009	1,021	1,668	4,030	1,881	2,837	35,613
IN	10,711	2,183	747	1,326	4,296	966	2,767	22,996
IA	20,656	5,041	2,284	1,882	1,460	1,564	2,931	35,818
KS	26,780	4,078	3,485	13,255	1,207	1,703	1,830	52,338
KY	4,751	1,472	3,402	1,653	11,909	1,006	1,195	25,388
LA	3,934	1,145	829	2,070	13,873	1,318	5,325	28,494
ME	390	100	87	72	17,437	429	1,322	19,837
MD	1,427	198	189	215	2,462	654	1,151	6,296
MA	196	22	53	45	3,010	557	1,125	5,008
MI	6,403	1,459	519	1,731	17,597	2,488	6,254	36,451
MN	17,510	4,790	1,122	1,661	13,572	7,565	4,691	50,911
MS	4,941	1,607	1,244	2,287	16,674	880	2,596	30,229
MO	12,323	2,725	5,396	6,465	12,192	1,743	3,281	44,125
MT	15,321	1,651	1,292	47,139	18,709	6,145	2,791	93,048
NE	18,000	3,660	2,565	20,435	699	1,514	2,179	49,052

—continued

Table A-4 continued.

Land utilization, by States, 1987

State	Cropland			Grassland pasture ²	Forest land ³	Special use areas ⁴	Other land	Total land area
	Used for crops ¹	Idle	Used only for pasture					
				1,000 acres				
NV.....	583	60	209	45,735	7,383	7,517	8,845	70,332
NH.....	107	9	31	50	4,803	263	493	5,756
NJ.....	499	80	73	35	1,914	712	1,466	4,779
NM.....	1,217	665	557	51,818	17,127	3,647	2,623	77,654
NY.....	3,802	630	822	1,005	16,226	3,898	3,938	30,321
NC.....	4,070	1,148	783	1,210	18,401	2,118	3,530	31,260
ND.....	25,464	2,441	1,522	11,187	460	1,601	1,677	44,352
OH.....	9,689	1,742	942	1,502	7,141	1,184	4,043	26,243
OK.....	9,565	1,876	4,433	17,754	6,970	1,330	2,011	43,939
OR.....	3,695	831	858	22,913	26,278	3,568	3,415	61,558
PA.....	4,240	509	803	1,093	16,189	2,409	3,485	28,728
RI.....	21	3	5	3	391	59	193	675
SC.....	1,942	786	464	422	12,179	1,124	2,413	19,330
SD.....	17,022	2,207	2,389	22,261	1,552	1,521	1,657	48,609
TN.....	4,278	1,043	2,472	1,446	12,863	2,154	2,083	26,339
TX.....	19,548	6,734	10,181	104,656	13,536	4,681	8,355	167,691
UT.....	1,278	298	528	23,080	14,793	5,451	7,099	52,527
VT.....	438	29	188	200	4,424	422	234	5,935
VA.....	2,671	493	1,449	1,773	15,497	1,449	2,078	25,410
WA.....	6,675	1,111	579	7,235	17,857	6,637	2,473	42,567
WV.....	678	99	642	479	11,799	683	1,059	15,436
WI.....	8,251	1,177	1,162	2,076	15,058	2,150	4,956	34,833
WY.....	2,150	248	550	45,146	5,552	6,293	2,134	62,073
US.....	330,877	68,143	64,877	591,083	648,164	278,599	283,300	2,265,147

¹Cropland harvested, crop failure, and cultivated summer fallow. ²Grassland and other nonforest pasture and range. ³Excludes reserved and other forest land duplicated in parks and other special uses of land. Includes forested grazing land. ⁴Includes rural transportation areas, Federal and State areas used primarily for recreation and wildlife purposes, military areas, farmsteads, and farm roads and lanes.

Economic Research Services. Estimates based on reports and records of the U.S. Departments of Agriculture and Commerce, and public land administering and conservation agencies. Estimates developed for years coinciding with a Census of Agriculture.

Table A-5.

Wheat: Area, yield, supply, disappearance, and prices, 1960-93¹

Year beginning June 1	Area (1,000 acres)		Yield per harvested acre (bu)	Supply (mil bu)			Disappearance (mil bu)		Prices received by farmers (dol per bu)
	Planted	Harvested		Beginning stock	Production	Imports ²	Total	Domestic use	
1960	54,906	51,879	26.1	1,384	1,355	8	2,747	591	1,245
1961	55,707	51,571	23.9	1,502	1,232	6	2,741	604	1,320
1962	49,274	43,688	25.0	1,421	1,092	5	2,518	599	1,248
1963	53,364	45,506	25.2	1,270	1,147	4	2,421	581	1,427
1964	55,672	49,762	25.8	993	1,283	2	2,279	635	1,358
1965	57,361	49,560	26.5	921	1,316	1	2,238	725	1,577
1966	54,105	49,613	26.3	660	1,305	2	1,967	683	1,454
1967	67,264	58,353	25.8	513	1,508	1	2,021	626	1,391
1968	61,860	54,765	28.4	630	1,557	1	2,188	740	1,284
1969	53,450	47,146	30.6	904	1,443	3	2,350	764	1,367
1970	48,739	43,564	31.0	983	1,352	1	2,336	772	1,513
1971	53,822	47,685	33.9	823	1,619	1	2,442	849	1,459
1972	54,913	47,303	32.7	983	1,546	1	2,531	799	1,934
1973	59,254	54,148	31.6	597	1,711	3	2,311	753	1,970
1974	71,044	65,368	27.3	340	1,782	3	2,125	672	1,690
1975	74,900	69,499	30.6	435	2,127	2	2,584	726	1,899
1976	80,395	70,927	30.3	666	2,149	3	2,817	754	1,704
1977	75,410	66,686	30.7	1,113	2,046	2	3,161	859	1,983
1978	65,989	56,495	31.4	1,178	1,776	2	2,955	837	2,031
1979	71,424	62,454	34.2	924	2,134	2	3,060	783	2,158
1980	80,788	71,125	33.5	902	2,381	3	3,285	783	2,296
1981	88,251	81,642	34.5	989	2,785	3	3,777	847	2,618
1982	86,232	77,937	35.5	1,159	2,765	8	3,932	908	2,417

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Table A-5 continued.

Wheat: Area, yield, supply, disappearance, and prices, 1960-93¹

Year beginning June 1	Area (1,000 acres)		Yield per harvested acre (bu)	Supply (mil bu)			Disappearance (mil bu)		Prices received by farmers (dol per bu)
	Planted	Harvested		Beginning stock	Production	Imports ²	Total	Domestic use	
1983	76,419	61,390	39.4	1,515	2,420	4	3,939	1,114	3.51
1984	79,213	66,928	38.8	1,399	2,595	9	4,003	1,156	3.39
1985	75,575	64,734	37.5	1,425	2,424	16	3,866	1,051	3.08
1986	72,068	60,723	34.4	1,905	2,091	21	4,017	1,197	2.42
1987	65,834	55,945	37.7	1,821	2,108	16	3,945	1,096	2.57
1988	65,829	53,189	34.1	1,261	1,812	23	3,096	979	3.72
1989	76,615	62,189	32.7	702	2,037	23	2,762	993	3.72
1990	77,241	69,283	39.5	536	2,736	36	3,309	1,375	2.61
1991	69,921	57,703	34.3	866	1,981	41	2,888	1,137	3.00
1992	72,264	62,411	39.4	472	2,459	70	3,001	1,118	3.24 ³
1993 ⁴	72,208	62,647	38.3	529	2,402	90	3,021	1,198	3.20

¹1992 preliminary. ²Imports and exports include flour and other products expressed in wheat equivalents. ³Projected. ⁴As of February 1994.

Table A-6.

Corn (grain only): Area, yield, supply, disappearance, and prices, 1960-93¹

Year ²	Area ('1,000 acres)			Yield per harvested acre (bu)	Supply (mil bu)			Disappearance (mil bu)		Prices received by farmers (dol per bu)	
	Planted for all purpose	Harvested for grain	Beginning stock		Production	Imports	Total	Domestic			
								use	Exports ³		Total
1960	81,425	71,422	54.7	1,787	3,907	1	5,696	3,387	292	3,679	1.00
1961	65,919	57,634	62.4	2,016	3,598	1	5,615	3,527	435	3,962	1.10
1962	65,017	55,726	64.7	1,653	3,606	1	5,260	3,479	416	3,895	1.12
1963	68,771	59,227	67.9	1,365	4,019	1	5,385	3,348	500	3,848	1.11
1964	65,823	55,369	62.9	1,537	3,484	1	5,022	3,305	570	3,875	1.17
1965	65,171	55,392	74.1	1,147	4,103	1	5,251	3,722	687	4,409	1.16
1966	66,347	57,002	73.1	842	4,168	1	5,011	3,698	487	4,184	1.24
1967	71,156	60,694	80.1	826	4,860	1	5,687	3,885	633	4,518	1.03
1968	65,126	55,980	79.5	1,169	4,450	1	5,620	3,966	536	4,502	1.08
1969	64,264	54,574	85.9	1,118	4,687	1	5,806	4,189	612	4,801	1.16
1970	66,863	57,358	72.4	1,005	4,152	4	5,161	3,978	517	4,495	1.33
1971	74,179	64,123	88.1	667	5,646	1	6,314	4,392	796	5,187	1.08
1972	67,126	57,513	97.0	1,127	5,580	1	6,708	4,742	1,258	6,000	1.57
1973	72,253	62,143	91.3	708	5,671	1	6,380	4,653	1,243	5,896	2.55
1974	77,935	65,405	71.9	484	4,701	2	5,187	3,677	1,149	4,826	3.02
1975	78,719	67,625	86.4	558	5,841	2	6,400	4,103	1,664	5,767	2.54
1976	84,588	71,506	88.0	633	6,289	2	6,925	4,144	1,645	5,789	2.15
1977	84,328	71,614	90.8	1,136	6,505	2	7,643	4,311	1,896	6,207	2.02
1978	81,675	71,930	101.0	1,436	7,268	1	8,705	4,882	2,113	6,995	2.25
1979	81,394	72,400	109.5	1,710	7,928	1	9,638	5,203	2,402	7,604	2.48
1980	84,043	72,961	91.0	2,034	6,639	1	8,675	4,891	2,391	7,282	3.12
1981	84,097	74,524	108.9	1,392	8,119	1	9,511	4,978	1,997	6,975	2.47

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Table A-6 continued.

Corn (grain only): Area, yield, supply, disappearance, and prices, 1960-93¹

Year ²	Area (1,000 acres)		Yield per harvested acre (bu)	Supply (mil bu)			Disappearance (mil bu)		Prices received by farmers (dol per bu)		
	Planted for all purpose	Harvested for grain		Beginning stock	Production	Imports	Total	Domestic use		Exports ³	
1982	81,857	72,719	113.2	2,537	8,235	1	10,772	5,428	1,821	7,249	2.55
1983	60,207	51,479	81.1	3,523	4,174	2	7,699	4,806	1,886	6,693	3.21
1984	80,517	71,897	106.7	1,006	7,672	2	8,680	5,182	1,850	7,032	2.63
1985	83,398	75,209	118.0	1,648	8,875	10	10,534	5,267	1,227	6,494	2.23
1986	76,580	68,907	119.4	4,040	8,226	2	12,267	5,893	1,492	7,385	1.50
1987	66,200	59,505	119.8	4,882	7,131	4	12,016	6,041	1,716	7,757	1.94
1988	67,717	58,250	84.6	4,259	4,929	3	9,191	5,232	2,026	7,260	2.54
1989	72,221	64,703	116.3	1,930	7,525	2	9,458	5,745	2,368	8,113	2.36
1990	74,171	66,952	118.5	1,344	7,934	3	9,282	6,036	1,725	7,761	2.28
1991	75,951	68,847	108.6	1,521	7,475	20	9,046	6,332	1,584	7,916	2.37
1992	79,340	72,162	131.4	1,100	9,482	7	10,589	6,813	1,663	8,476	2.07
1993 ⁴	73,323	62,991	100.7	2,133	6,344	20	84,770	6,375	1,300	7,675	2.60

¹Revised data, 1979-82. ²Marketing year beginning October 1, 1960-1974; September 1 marketing year from 1975 to date. ³Grain and grain equivalent of corn products.

⁴As of February 1994.

Table A-7.

Soybeans: Area, yield, supply, disappearance, and prices, 1960-93¹

Year beginning Sept. 1	Area (1,000 acres)		Yield per harvested acre (bu)	Supply (mil bu)		Seed, feed residual	Disappearance (mil bu)			Prices received by farmers (dol per bu)	
	Planted	Harvested		Beginning stock	Production		Total	Exports	Crushed for oil (mil bu)		Total
1960	24,440	23,655	23.5	51.8	555.1	606.9	39	134.7	406.1	579.8	2.13
1961	27,787	27,003	25.1	27.1	678.6	705.7	47	149.4	431.4	627.4	2.28
1962	28,418	27,608	24.2	78.3	669.2	747.5	48	180.5	472.8	701.5	2.34
1963	29,462	28,615	24.4	46.0	699.2	745.2	54	187.2	436.8	677.9	2.51
1964	31,721	30,793	22.8	67.3	700.9	768.2	47	212.2	479.0	738.5	2.62
1965	35,227	34,449	24.5	29.7	845.6	875.3	52	250.6	537.5	839.7	2.54
1966	37,294	36,546	25.4	35.6	928.5	964.1	53	261.6	559.4	874.0	2.75
1967	40,819	39,805	24.5	90.1	976.4	1,066.6	57	266.6	576.4	900.2	2.49
1968	42,265	41,391	26.7	166.3	1,107.0	1,273.3	53	286.8	605.9	946.4	2.43
1969	42,534	41,337	27.4	326.8	1,131.1	1,458.0	58	432.6	737.3	1,228.0	2.35
1970	43,082	42,249	26.7	229.8	1,127.1	1,356.9	64	433.8	760.1	1,258.2	2.85
1971	43,476	42,705	27.5	98.8	1,176.1	1,274.9	65	416.8	720.4	1,202.9	3.03
1972	46,866	45,683	27.8	72.0	1,201.0	1,273.0	12	479.4	721.8	1,213.0	4.37
1973	56,549	55,667	27.8	59.6	1,548.0	1,608.0	77	539.1	821.3	1,436.4	5.68
1974	52,479	51,341	23.7	170.8	1,216.3	1,387.0	77	420.7	701.3	1,198.9	6.64
1975	54,590	53,617	28.9	188.2	1,549.0	1,735.5	71	555.1	865.1	1,490.6	4.92
1976	50,269	49,401	26.1	244.9	1,288.6	1,533.5	77	564.1	790.2	1,429.6	6.81
1977	58,978	57,830	30.6	102.9	1,767.3	1,870.2	82	700.5	926.7	1,709.0	5.88
1978	64,708	63,663	29.4	161.2	1,868.7	2,029.9	97	739.2	1,018.0	1,854.2	6.66
1979	71,411	70,343	32.1	176.0	2,261.0	2,437.0	81	875.0	1,123.0	2,079.0	6.28
1980	69,930	67,813	26.5	358.0	1,798.0	2,156.0	99	724.0	1,020.0	1,843.0	7.57
1981	67,543	66,163	30.1	313.0	1,989.0	2,302.0	89	929.0	1,030.0	2,048.0	6.07

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Table A-7 continued.

Soybeans: Area, yield, supply, disappearance, and prices, 1960-93¹

Year beginning Sept. 1	Area (1,000 acres)		Yield per acre (bu)	Supply (mil bu)			Disappearance (mil bu)			Prices received by farmers (dol per bu)	
	Planted	Harvested		Beginning stock	Production	Total	Seed, feed residual	Exports	Crushed for oil (mil bu)		Total
1982	70,884	69,442	31.5	254.0	2,190.0	2,444.0	86	905.0	1,108.0	2,099.0	5.71
1983	63,779	62,525	26.2	345.0	1,636.0	1,981.0	79	743.0	983.0	1,805.0	7.83
1984	67,755	66,113	28.1	176.0	1,861.0	2,037.0	93	598.0	1,030.0	1,721.0	5.84
1985	63,145	61,599	34.1	316.0	2,099.0	2,415.0	86	740.0	1,053.0	1,879.0	5.05
1986	60,405	58,312	33.3	536.0	1,943.0	2,479.0	106	757.0	1,179.0	2,042.0	4.78
1987	58,180	57,172	33.9	436.0	1,938.0	2,374.0	97	802.0	1,174.0	2,072.0	5.88
1988	58,840	57,373	27.0	302.0	1,549.0	1,855.0	88	527.0	1,058.0	1,673.0	7.42
1989	60,820	59,538	32.3	182.0	1,924.0	2,109.0	101	623.0	1,146.0	1,870.0	5.69
1990	57,795	56,512	34.1	239.0	1,926.0	2,165.0	95	557.0	1,187.0	1,839.0	5.74
1991	59,180	58,011	34.2	329.0	1,987.0	2,319.0	103	684.0	1,254.0	2,041.0	5.58
1992 ²	59,130	58,183	37.6	278	2,188	2,466	127	770	1,279	2,176	5.56
1993 ³	59,355	56,447	32.0	292	1,809	2,101	101	615	1,230	1,946	6.50

¹Revised data, 1984-88. ²Estimated as of February. ³As of February 1994.

Table A-8.

Cotton (all kinds): Area, yield, supply, disappearance, and prices, 1964-93

Year ²	Area (1,000 acres)		Yield per harvested acre (pounds)	Supply (1,000 bales)			Disappearance (1,000 bales)			Prices received by farmers ² (cents per pound)	
	Planted	Harvested		Beginning stock	Production	Imports	Total	Domestic			
								mill use	Exports		Total
1964	14,835	14,055	517	12,351	15,144	118	27,613	9,261	4,195	13,456	31.0
1965	14,152	13,615	527	14,249	14,951	118	29,318	9,596	3,035	12,631	29.3
1966	10,349	9,552	480	17,028	9,555	105	26,688	9,574	4,832	14,406	21.7
1967	9,448	7,997	447	12,344	7,443	149	19,936	9,077	4,361	13,438	26.7
1968	10,912	10,160	516	6,584	10,925	68	17,577	8,332	2,825	11,157	23.1
1969	11,882	11,058	434	6,544	9,990	52	16,586	8,114	2,878	10,992	22.0
1970	11,945	11,155	438	5,843	10,192	37	16,072	8,204	3,897	12,101	22.9
1971	12,355	11,471	438	4,203	10,477	72	14,752	8,259	3,385	11,644	28.2
1972	14,001	12,984	507	3,258	13,704	34	16,996	7,769	5,311	13,080	27.3
1973	12,480	11,970	520	4,221	12,974	48	17,243	7,472	6,123	13,595	44.6
1974	13,679	12,547	441	3,808	11,540	34	15,382	5,860	3,926	9,786	42.9
1975	9,478	8,796	453	5,708	8,302	92	14,102	7,250	3,311	10,561	51.3
1976	11,636	10,914	465	3,681	10,581	38	14,300	6,674	4,784	11,458	64.1
1977	13,680	13,275	520	2,928	14,389	5	17,322	6,483	5,484	11,967	52.3
1978	13,375	12,400	420	5,347	10,856	4	16,207	6,352	6,180	12,532	58.4
1979	13,978	12,831	547	3,958	14,629	5	18,592	6,506	9,229	15,735	62.5
1980	14,534	13,215	404	3,000	11,122	27	14,149	5,891	5,926	11,817	74.7
1981	14,330	13,841	542	2,668	15,646	26	18,340	5,264	6,567	11,831	54.3
1982	11,345	9,734	590	6,632	11,963	20	18,615	5,512	5,207	10,719	59.4
1983	7,926	7,348	508	7,937	7,771	12	15,721	5,928	6,786	12,714	66.4
1984	11,145	10,379	600	2,775	12,982	25	15,781	5,540	6,215	11,755	57.8
1985	10,685	10,229	630	4,102	13,432	33	17,567	6,399	1,960	8,359	56.3

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Table A-8 continued.

Cotton (all kinds): Area, yield, supply, disappearance, and prices, 1964-93

Year ²	Area (1,000 acres)		Yield per acre harvested (pounds)	Supply (1,000 bales)			Disappearance (1,000 bales)		Prices received by farmers ² (cents per pound)
	Planted	Harvested		Beginning stock	Production	Imports	Total	Domestic mill use	
1986	10,045	8,468	552	9,348	9,731	3	19,082	7,452	52.4
1987	10,397	10,030	706	5,026	14,760	2	19,788	7,617	64.3
1988	12,515	11,948	619	5,771	15,411	5	21,187	7,782	56.6
1989	10,587	9,538	614	7,092	12,196	2	19,290	8,759	66.2
1990	12,348	11,732	634	3,000	15,505	4	18,509	8,657	67.1
1991	14,052	12,960	652	2,344	17,614	13	19,971	9,613	58.1
1992 ³	13,240	11,143	699	3,704	16,219	2	19,926	9,900	54.9
1993 ⁴	13,444	12,788	607	4,660	16,176	1	20,837	10,200	54.3

¹Marketing year beginning August 1. ²Upland cotton, weighted season average price received by farmers. ³Estimated. ⁴As of February 1994.

Table A-9.

Cattle and calves: Inventory numbers, calf crop, disposition, production, and prices, 1960-92¹

Year	Inventory Jan. 1 ² (1,000 head)	Calf crop (1,000 head)	Inship- ments (1,000 head)	Farm				Production ⁴	Marketings ⁵	Price per 100 pounds (dollars)			
				Marketings ² (1,000 Head)		Slaughter ³ (1,000 Head) Cattle and Calves				Deaths (1,000 Head)		Cattle	Calves
				Cattle	Calves	Cattle	Calves			Cattle	Calves		
1960	96,236	39,355	13,477	34,254	12,034	1,195	1,567	2,533	28,795,880	35,722,510	20.40	22.90	
1961	97,700	40,180	14,761	35,138	11,898	1,218	1,532	2,486	29,902,448	36,821,343	20.20	23.70	
1962	100,369	41,441	16,583	36,403	12,182	1,194	1,583	2,542	30,774,859	37,668,658	21.30	25.10	
1963	104,448	42,268	16,182	37,863	11,918	1,213	1,560	2,480	32,776,777	40,033,778	19.90	24.00	
1964	107,903	43,809	15,595	40,280	12,552	1,242	1,595	2,637	34,836,138	42,655,520	18.00	20.40	
1965	109,000	43,928	17,464	43,482	12,603	1,196	1,641	2,607	34,002,808	44,623,119	19.90	22.00	
1966	108,862	43,537	18,624	45,038	12,488	665	1,625	2,424	34,949,625	46,284,623	22.20	26.00	
1967	108,783	43,803	18,597	44,781	12,365	622	1,533	2,512	36,122,064	46,684,824	22.30	26.30	
1968	109,371	44,315	19,509	45,860	12,742	568	1,527	2,485	36,530,247	47,494,093	23.40	27.60	
1969	110,015	45,177	19,942	45,559	12,598	486	1,532	2,591	37,146,953	47,194,719	26.20	31.60	
1970	112,369	45,871	20,059	46,926	12,036	462	1,583	2,714	39,342,987	49,459,720	27.10	34.50	
1971	114,578	46,738	22,673	49,143	12,086	456	1,634	2,808	39,434,379	50,685,799	29.00	36.40	
1972	117,862	47,682	24,831	51,043	12,164	503	1,780	3,346	41,225,193	53,141,798	33.50	44.70	
1973	121,539	49,194	24,133	48,369	11,652	570	2,099	4,388	44,231,455	51,022,731	42.80	56.60	
1974	127,788	50,873	18,103	48,383	9,514	729	2,006	4,104	42,760,575	50,208,435	35.60	35.20	
1975	132,028	50,183	20,095	54,331	12,253	750	2,396	4,596	40,878,016	54,877,016	32.30	27.20	
1976	127,980	47,384	21,238	54,410	12,525	722	1,821	3,369	41,368,299	57,169,770	33.70	34.20	
1977	122,810	45,931	23,241	56,342	12,722	700	2,000	4,000	40,829,023	58,426,941	34.50	36.90	
1978	116,375	43,818	23,573	54,622	11,952	550	1,940	3,860	39,766,559	57,381,035	48.50	59.00	
1979	110,864	42,596	22,322	48,358	10,151	430	1,900	3,700	38,803,335	51,874,758	66.10	88.70	
1980	111,242	44,938	20,513	46,026	10,502	401	1,795	3,618	40,283,777	50,210,836	62.40	76.80	
1981	114,351	44,666	18,914	46,647	10,383	398	1,700	3,359	41,178,209	50,896,754	58.60	64.00	

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Table A-9 continued.

Cattle and calves: Inventory numbers, calf crop, disposition, production, and prices, 1960-92¹

Year	Inventory Jan. 1 ² (1,000 head)	Calf crop (1,000 head)	Inship- ments (1,000 head)	Farm						Price per 100 pounds (dollars)			
				Marketings ² (1,000 Head)		Slaughter ³ (1,000 Head) Cattle and Calves		Deaths (1,000 Head)				Production ⁴	Marketings ⁵
				Cattle	Calves	Calves	Calves	Cattle	Calves				
1982	115,444	44,200	21,289	49,549	10,560	395	1,843	3,586	40,714,722	53,272,291	56.70	59.80	
1983	115,001	43,885	19,210	48,089	10,443	410	1,877	3,617	40,301,302	51,990,001	55.50	61.70	
1984	113,360	42,470	20,515	50,862	10,253	388	1,873	3,591	40,030,471	54,644,756	57.30	59.90	
1985	109,582	41,050	19,864	49,243	10,530	370	1,701	3,345	40,157,633	54,483,633	53.70	62.10	
1986	105,378	41,182	21,211	49,963	10,498	351	1,738	3,300	40,464,719	55,398,117	52.60	61.10	
1987	102,118	40,152	22,222	49,232	10,423	330	1,700	3,100	40,327,023	54,449,464	61.10	78.50	
1988	99,622	40,588	22,061	47,949	10,211	280	1,650	3,000	40,617,645	53,761,675	66.60	89.20	
1989	98,065	40,102	21,858	46,682	10,489	240	1,537	2,915	40,240,800	52,765,220	69.50	90.80	
1990	98,162	39,249	23,304	46,991	10,152	245	1,570	2,862	40,386,144	53,315,858	74.60	95.60	
1991	98,896	39,026	22,310	46,670	9,416	242	1,581	2,766	41,089,597	53,988,403	72.70	98.00	
1992	99,559	39,335	22,335	45,884	9,725	243	1,698	2,787	40,913,865	53,131,604	71.30	89.00	

¹Balance sheet estimates. Total of marketings, farm slaughter, deaths and onhand and of year equals total of births, shipments, and onhand beginning of year. Includes Alaska and Hawaii beginning 1961. ²All cattle and calves. ³Data for 1966 not comparable with previous years due to change in definition to include custom slaughtering in plants for farmers as part of the commercial meat. ⁴Adjustments made for shipments and changes in inventory. ⁵Excludes interfarm sales.

Table A-10.

Hogs: Inventory numbers, pig crop, disappearance, and prices, 1960-92¹

Year	Inventory Dec. 1 ² (1,000 head)	Pig crop (1,000 head)	Inshipments (1,000 head)	Marketings ³ (1,000 head)	Farm slaughter ⁴ (1,000 head)	Deaths (1,000 head)	Production ⁵ (1,000 lb)	Marketings (1,000 lb)	Price per 100 pounds (dollars)
1960	59,026	88,216	2,500	79,831	5,114	9,223	19,203,234	18,622,151	15.30
1961	55,560	92,713	2,293	80,326	4,639	8,984	20,166,822	18,917,418	16.60
1962	56,619	93,608	2,639	81,743	4,093	9,037	20,274,620	19,310,335	16.30
1963	57,993	94,056	2,657	86,163	3,795	7,991	20,960,460	20,273,936	14.90
1964	56,757	87,544	2,718	86,088	3,269	6,872	20,216,732	20,487,965	14.80
1965	56,106	78,941	2,364	78,127	2,678	6,089	18,252,141	18,426,743	19.60
1966	50,519	87,604	2,489	75,761	1,375	6,351	19,148,989	17,773,114	23.50
1967	57,125	91,668	2,855	85,258	1,301	6,273	20,636,444	19,948,881	19.10
1968	58,818	94,156	3,181	87,728	1,262	6,338	21,034,221	20,381,499	18.50
1969	60,829	88,676	3,092	88,074	1,134	6,343	20,600,325	20,708,223	22.20
1970	57,046	101,714	3,211	86,919	1,235	6,532	21,822,826	20,347,354	22.70
1971	67,285	97,924	3,639	98,644	1,210	6,584	22,832,335	23,147,614	17.50
1972	62,412	90,574	3,360	89,555	1,158	6,617	20,918,802	20,922,577	24.10
1973	59,017	88,123	3,902	82,419	1,095	6,914	20,154,425	19,606,900	38.40
1974	60,614	83,744	3,979	85,504	1,321	6,819	19,976,384	20,299,581	34.20
1975	54,693	71,186	3,806	73,959	1,193	5,631	16,798,843	16,980,920	46.10
1976	49,267	84,395	4,191	75,744	1,175	6,001	18,110,651	17,085,365	43.30
1977	54,934	86,162	4,258	80,917	1,145	6,754	19,124,424	18,409,468	39.40
1978	56,539	88,442	4,713	81,428	1,099	7,067	19,610,887	18,749,389	46.60
1979	60,356	102,792	5,003	92,499	1,070	7,265	22,617,129	21,485,876	41.80
1980	67,318	101,720	4,668	100,651	1,100	7,494	23,401,728	23,473,775	38.00
1981	64,462	93,853	4,147	95,986	895	6,883	21,812,966	22,258,979	43.90
1982	58,598	85,189	3,827	86,972	655	5,552	19,657,921	20,154,962	52.30
1983	54,534	93,155	3,527	89,129	517	4,875	21,195,347	20,834,899	46.80

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Table A-10 continued.

Hogs: Inventory numbers, pig crop, disappearance, and prices, 1960-92¹

Year	Inventory/ Dec. 1 ² (1,000 head)	Pig crop (1,000 head)	Inshipments (1,000 head)	Marketings ³ (1,000 head)	Farm slaughter ⁴ (1,000 head)	Deaths (1,000 head)	Production ⁵ (1,000 lb)	Marketings (1,000 lb)	Price per 100 pounds (dollars)
1984	56,694	86,586	3,527	87,344	473	4,917	20,195,699	20,490,921	47.10
1985	54,073	86,029	3,696	86,694	446	4,345	20,164,269	20,360,970	44.00
1986	52,313	82,283	3,463	86,608	358	4,133	19,362,696	19,362,696	49.30
1987	50,920	88,347	3,746	83,857	328	4,208	20,408,228	19,943,130	51.20
1988	54,384	92,883	3,642	90,334	337	4,768	21,669,577	21,626,216	42.30
1989	55,469	92,074	3,642	92,553	317	4,494	21,941,772	22,176,985	42.50
1990	53,821	90,260	4,317	89,373	280	4,269	22,808,605	22,553,539	53.70
1991	54,477	95,433	4,660	92,351	266	4,268	22,808,605	22,553,539	49.10
1992	57,684	100,786	4,805	99,115	268	4,576	24,278,519	24,285,468	41.60

¹Balance sheet estimates. Total of marketings, farm slaughter, deaths, and onhand end of year equals totals of births, inshipments, and onhand beginning of year. Includes Alaska and Hawaii beginning 1981. ²All hogs and pigs. Beginning with 1967 number onhand is estimate as of December 1 previous year. ³Excludes interfarm sales. ⁴Data for 1966 not comparable with previous years due to change in definition to include custom slaughtering in plants for farmers as part of the commercial meat production estimates beginning with January. ⁵Adjustments made for inshipments and changes in inventory.

Table A-11.

Sheep and lambs: Inventory numbers, lamb crop, disposition, production, and prices, 1962-92¹

Year	Inventory Jan. 1 ² (1,000 head)	Lamb crop (1,000 head)	Inshipments (1,000 head)		Marketings ³ (1,000 head)		Farm slaughter ⁴ (1,000 head)		Deaths (1,000 head)		Production ⁵ (1,000 lb)	Marketings ³ (1,000 lb)	Price per 100 pounds (dollars)	
			Sheep	Lambs	Sheep	Lambs	Sheep	Lambs	Sheep	Lambs			Sheep	Lambs
1962	30,969	19,712	636	5,198	3,788	18,783	113	218	2,430	2,007	1,490,722	2,074,148	5.63	17.80
1963	29,176	18,516	620	4,962	3,720	17,956	113	212	2,268	1,889	1,393,141	2,002,402	5.76	18.10
1964	27,116	16,994	736	4,838	3,437	16,757	107	193	2,265	1,797	1,330,507	1,860,420	6.00	19.90
1965	25,127	16,312	5,165		2,454	15,213	294		2,199	1,711	1,217,139	1,639,762	6.34	22.80
1966	24,734	15,881	4,679		2,785	14,674	268		940	1,674	1,249,097	1,651,261	6.84	23.40
1967	23,953	15,017	4,030		2,911	13,993	245		1,980	1,649	1,153,596	1,603,247	6.35	22.10
1968	22,223	14,443	4,035		2,298	13,448	237		1,789	1,580	1,166,190	1,487,480	6.58	24.40
1969	21,350	13,723	4,119		2,282	12,873	233		1,826	1,556	1,065,074	1,446,504	8.10	27.20
1970	20,423	13,465	4,032		1,983	12,840	249		1,638	1,478	1,099,385	1,435,918	7.52	26.40
1971	19,731	12,998	4,004		2,202	12,627	236		1,482	1,446	1,070,502	1,447,047	6.56	25.90
1972	18,739	12,599	3,976		2,170	12,383	224		1,417	1,480	1,004,102	1,411,461	7.26	29.10
1973	17,641	11,500	3,275		2,198	10,879	202		1,386	1,441	895,776	1,278,090	12.90	35.10
1974	16,310	10,509	2,629		2,172	9,888	217		1,248	1,409	806,755	1,177,539	11.20	37.00
1975	14,515	9,857	2,343		1,771	8,997	212		1,081	1,343	781,120	1,072,665	11.30	42.10
1976	13,311	8,888	2,466		1,445	8,071	197		983	1,202	732,765	961,780	13.20	46.90
1977	12,766	8,606	2,173		1,504	7,405	198		910	1,181	703,942	896,568	13.40	51.30
1978 ⁶	12,322	8,020	2,151		1,470	6,606	174		905	1,117	696,929	856,668	21.70	62.70
1979	12,365	7,974	2,143		1,347	6,336	172		867	1,063	704,593	806,765	25.70	66.70
1980	12,699	8,257	2,216		1,395	6,743	166		894	1,026	746,343	854,830	21.30	63.60
1981	12,947	8,820	1,885		1,510	7,103	189		818	1,035	772,382	885,634	21.20	54.90
1982	12,997	8,580	2,115		2,124	7,358	195		815	1,060	785,425	1,017,918	19.50	53.10
1983	12,140	8,209	1,838		1,820	7,140	171		674	934	767,553	966,515	15.70	53.90
1984	11,487	7,788	1,859		1,821	7,007	141		792	929	694,116	944,552	16.40	60.10

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Table A-11 continued.

Sheep and lambs: Inventory numbers, lamb crop, disposition, production, and prices, 1962-92¹

Year	Inventory Jan. 1 ² (1,000 head)	Lamb crop (1,000 head)	Inshipments (1,000 head)		Marketings ³ (1,000 head)		Farm slaughter ⁴ (1,000 head)		Deaths (1,000 head)		Production ⁵ (1,000 lb)	Marketings ³ (1,000 lb)	Price per 100 pounds (dollars)	
			Sheep	Lambs	Sheep	Lambs	Sheep	Lambs	Sheep	Lambs			Sheep	Lambs
1985	10,443	7,412	1,693	1,569	6,478	135	839	544	839	694,217	868,942	23.90	67.70	
1986	9,983	7,356	1,792	1,310	6,084	128	777	498	777	721,464	809,588	25.60	69.00	
1987	10,389	7,190	1,814	1,232	6,024	113	736	503	736	728,863	799,111	29.50	77.60	
1988	10,945	7,206	1,518	1,566	5,939	99	695	514	695	707,148	625,734	25.60	69.10	
1989	10,858	7,725	1,674	1,058	6,492	98	735	510	735	775,620	827,968	24.40	66.10	
1990	11,363	7,704	1,471	1,624	6,290	96	810	519	810	757,236	879,829	23.20	55.50	
1991	11,200	7,644	1,553	1,777	6,566	92	736	476	736	762,815	926,780	19.70	52.20	
1992	10,750	7,248	1,659	1,855	6,335	89	765	439	765	711,339	905,541	25.80	59.50	

¹Balance sheet estimates. Total of marketings, farm slaughter, deaths, and onhand end of year equals total of births, inshipments, and onhand beginning of year. Includes Alaska beginning 1961; Hawaii not available. ²All sheep and lambs. ³Excludes interfarm sales. ⁴Data for 1966 not comparable with previous years due to change in definition to include custom slaughtering in plants for farmers as part of the commercial estimates beginning with January 1966. ⁵Adjustments made for inshipments and changes in inventory.

⁶Excludes inventory and supply and disposition items for AL, AR, DE, FL, GA, MS, RI, and SC, and is comparable to other supply and disposition items for 1978. Actual Jan 1, 1978, inventory is 12,369,000 head.

Table A-12.

Milk: Supply, utilization, and prices, 1960-92¹

Year	Supply (mil lb)					Utilization (mil lb)			Prices received by farmers for all milk (dol. per cwt)		Milk feed ratios ⁵
	Average number of milk cows ² (1,000 head)	Milk production per cow ³ (lb)	Beginning stocks		Imports	Total	Domestic disappearance	Export and shipments ⁴	Total		
			Production	Imports							
1960	17,515	7,029	4,167	123,109	604	127,880	121,451	1,029	122,480	4.21	1.45
1961	17,243	7,290	5,400	125,707	760	131,867	121,032	932	121,964	4.22	1.45
1962	16,842	7,496	9,903	126,251	795	136,949	123,075	1,718	124,793	4.09	1.40
1963	16,260	7,700	12,156	125,202	915	138,273	123,092	5,493	128,585	4.10	1.36
1964	15,677	8,099	9,688	126,967	830	137,485	124,741	7,454	132,195	4.15	1.38
1965	14,953	8,305	5,290	124,180	923	130,393	123,579	2,358	125,937	4.23	1.40
1966	14,071	8,522	4,456	119,912	2,791	127,159	121,092	1,208	122,300	4.81	1.53
1967	13,415	8,851	4,859	118,732	2,908	126,499	117,423	824	118,247	5.02	1.56
1968	12,832	9,135	8,252	117,225	1,780	127,257	118,852	1,771	120,623	5.24	1.70
1969	12,307	9,434	6,634	116,108	1,621	124,363	117,699	1,419	119,118	5.49	1.74
1970	12,000	9,751	5,192	117,007	1,874	124,073	117,303	964	118,267	5.71	1.74
1971	11,839	10,015	5,776	118,566	1,346	125,688	117,495	3,120	120,615	5.87	1.70
1972	11,700	10,259	5,073	120,025	1,694	126,792	119,085	2,205	121,290	6.07	1.72
1973	11,413	10,119	5,502	115,491	3,860	124,853	119,150	1,302	120,452	7.14	1.46
1974	11,230	10,293	4,401	115,586	2,923	122,910	115,967	1,155	117,122	8.33	1.22
1975	11,139	10,360	5,788	115,398	1,669	122,855	118,004	1,048	119,052	8.75	1.31
1976	11,032	10,894	3,803	120,180	1,943	125,926	119,245	1,030	120,275	9.66	1.37
1977	10,945	11,206	5,651	122,654	1,968	130,273	120,517	995	121,512	9.72	1.39
1978	10,803	11,243	8,761	121,461	2,310	132,532	122,643	982	123,625	10.60	1.53
1979	10,743	11,488	8,907	123,350	2,305	134,562	124,818	1,021	125,839	12.02	1.55
1980	10,810	11,889	8,723	128,406	2,109	139,238	125,119	993	126,112	13.05	1.48
1981	10,923	12,177	13,126	132,770	2,329	148,225	125,744	3,929	129,673	13.77	1.44

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Table A-12 continued.

Milk: Supply, utilization, and prices, 1960-92¹

Year	Supply (mil lb)				Utilization (mil lb)			Prices received by farmers for all milk (dol. per cwt)	Milk feed ratios ⁵		
	Average number of milk cows ² (1,000 head)	Milk production per cow ³ (lb)	Beginning stocks	Production	Imports	Total	Domestic disappearance				
										Export and shipments ⁴	Total
1982	11,011	12,306	18,552	135,505	2,477	156,534	130,294	5,944	136,238	13.61	1.54
1983	11,098	12,585	20,296	139,588	2,617	162,501	135,760	3,890	139,650	13.58	1.45
1984	10,833	12,503	22,851	135,351	2,741	160,943	139,674	4,485	144,159	13.46	1.41
1985	11,016	12,994	16,784	143,012	2,776	162,572	143,338	5,522	148,860	12.75	1.52
1986	10,813	13,260	13,682	143,124	2,732	159,538	144,069	2,547	146,616	12.50	1.57
1987	10,327	13,819	12,922	142,709	2,490	158,121	147,600	3,048	150,648	12.54	1.63
1988	10,262	14,145	7,473	145,152	2,394	155,019	144,444	2,197	146,641	12.26	1.35
1989	10,126	14,244	8,378	144,239	2,498	155,115	141,305	4,774	146,079	13.56	1.44
1990	10,127	14,645	9,036	148,313	2,690	160,039	143,899	2,781	146,680	13.74	1.50
1991	9,992	14,860	13,359	148,477	2,625	164,461	144,318	4,303	148,621	12.27	1.39
1992 ⁶	9,839	15,423	15,840	151,747	2,520	170,107	145,695	9,268	154,963	13.15	1.47

¹Supply-utilization data, milk equivalent fat solids bases. ²Average number on farms during the year; heifers that have not freshened excluded. ³Excludes milk sucked by calves.⁴Includes sales for dollars, government-to-government sales P.L. 480, and AID programs. Exports only beginning 1988. ⁵Pounds of average concentrate ration equal in value to 1 pound of milk. ⁶Preliminary.

Conversion Chart

■ Metric Conversions

<i>To convert this</i>	<i>to this</i>	<i>multiply by</i>
Length		
inches	millimeters (mm)	25.4
feet	centimeters (cm)	39
yards	meters (m)	.91
miles	kilometers (km)	1.61
millimeters	inches	.04
centimeters	inches	.4
meters	inches	39.37
meters	yards	1.1
kilometers	miles	.6
Weight		
ounces	grams(g)	28
pounds	kilograms (kg)	.45
short tons	metric tons	.9
kilograms	pounds	2.2
metric tons	pounds	2,204.6
metric tons	short tons	1.1
Area		
square inches	square centimeters	6.5
square feet	square meters	.09
square miles	square kilometers	2.6
acres	hectares	.4
square centimeters	square inches	.16
square meters	square yards	1.2
square kilometers	square miles	.4
hectares	acres	2.5
Volume		
teaspoons	milliliters	5
tablespoons	milliliters	15
fluid ounces	milliliters	30
cups	liters	.24
pints	liters	.47
quarts	liters	.95
gallons	liters	3.8
cubic feet	cubic meters	.03
cubic yards	cubic meters	.76

<i>To convert this</i>	<i>to this</i>	<i>multiply by</i>
milliliters	fluid ounces	.03
liters	pints	2.1
liters	quarts	1.06
liters	gallons	.26
cubic meters	cubic feet	35
cubic meters	cubic yards	1.3
Temperature		
Fahrenheit	Celsius	.56 (after subtracting 31)
Celsius	Fahrenheit	1.82 (then add 32)
Farm products		
pounds per acre	kilograms per hectare	1.14
short tons per acre	kilograms per hectare	2.25
kilograms per hectare	metric tons per hectare	.001
kilograms per hectare	pounds per acre	.88
tons per hectare	short tons per acre	.44
tons per hectare	kilograms per hectare	1,000

■ Bushel/Weight Conversions

<i>1 bushel of:</i>	<i>weight in pounds</i>	<i>weight in kilograms</i>
wheat, soybeans, potatoes	60	27
corn, grain sorghum, rye, flaxseed	56	25
beets, carrots	50	23
barley, buckwheat, peaches	48	22
oats, cottonseed	32	14
<i>1 metric ton of:</i>	<i>weight in pounds</i>	<i>number of bushels</i>
wheat, soybeans, potatoes	2,204.6	36.74
corn, grain sorghum, rye, flaxseed	2,204.6	39.37
beets, carrots	2,204.6	44.09
barley, buckwheat, peaches	2,204.6	45.93
oats, cottonseed	2,204.6	68.89

Glossary of Agricultural Terms

Acid soil. Soil with a pH of less than 7.0.

Acreage reduction program (ARP). A voluntary land retirement program conducted by the Commodity Credit Corporation (CCC) in which participating farmers idle a prescribed portion of their crop acreage base of wheat, feed grains, cotton, or rice. The base is the average of the acreage planted for harvest and considered to be planted for harvest for the previous 5 years. Acreage considered to be planted includes any acreage not planted because of acreage reduction and diversion programs during a period specified by law. Farmers are not given a direct payment for ARP participation, although they must participate to be eligible for benefits such as CCC loans and deficiency payments. Participating producers are sometimes offered the option of idling additional land under a paid diversion program, which gives them a specific payment for each idled acre.

Advance deficiency payments. A portion of eligible deficiency payments made to crop producers when they sign up for Federal commodity programs. The Secretary is required to make advance payments when an ARP is in effect and deficiency payments are expected to be paid. Advance deficiency payments can range from 30 to 50 percent of expected payments, depending on the crop. Up to 50 percent of the advance payment may be made as commodity certificates. If total deficiency payments are less than the advance amount, producers must refund the excess portion.

Agricultural Adjustment Act of 1933 (P.L. 73-10) Signed May 12, 1933, this law introduced the price support programs, including production adjustments, and the incorporation of the Commodity Credit Corporation (CCC), under the laws of the State of Delaware on October 17, 1933. The program benefits were financed mostly by processing taxes on the specific commodity. The act also made price support loans by the CCC mandatory for the designated "basic" (storable) commodities: corn, wheat, and cotton.

Support for other commodities was authorized upon the recommendation by the Secretary of Agriculture with the President's approval. Commodity loan programs carried out by the CCC from 1933 to 1937 included programs for cotton, corn, turpentine, rosin, tobacco, peanuts, dates, figs, and prunes. The production control and processing taxes were later declared unconstitutional by the Supreme Court in 1936.

Agricultural Adjustment Act of 1938 (P.L. 75-430). Signed February 16, 1938, this law was the first to make price support mandatory for corn, cotton, and wheat to help maintain a sufficient supply for low production times along with marketing quotas to keep supply in line with market demand. It also established permissive supports for butter, dates, figs, hops, turpentine, rosin, pecans, prunes, raisins, barley, rye, grain sorghum, wool, winter cover-crop seeds, mohair, peanuts, and tobacco for the 1938-40 period. This act established the Federal Crop Insurance Corporation as a Government corporation. The 1938 Act is considered part of permanent agriculture legislation. Provisions of this law are often superseded by more current legislation. However, if the current legislation expires and new legislation is not enacted, the law reverts back to the permanent provisions of the 1938 Act, along with the Agricultural Act of 1949.

Agronomy. The science of crop production and soil management.

Alfalfa. A valuable leguminous crop for forage or hay used in livestock feeding.

Alkaline soil. Soil with a pH of more than 7.0.

Alternative farming. Production methods other than energy- and chemical-intensive one-crop (monoculture) farming. Alternatives include using animal and green manure rather than chemical fertilizers, integrated pest management instead of chemical pesticides, reduced tillage, crop rotation (especially with legumes to add nitrogen), alternative crops, or diversification of the farm enterprise.

Animal unit. A standard measure based on feed requirements, used to combine various classes of livestock according to size, weight, age, and use.

Aquaculture. The production of aquatic plants or animals in a controlled environment, such as ponds, raceways, tanks, or cages, for all or part of their life cycle. In the United States, baitfish, catfish, clams, crawfish, freshwater prawns, mussels, oysters, salmon, shrimp, tropical (or ornamental) fish, and trout account for most of the aquacultural production. Less widely established but growing species include alligator, hybrid striped bass, carp, eel, red fish, northern pike, sturgeon, and tilapia.

Arid climate. A dry climate with an annual precipitation usually less than 10 inches. Not suitable for crop production without irrigation.

Artificial insemination (AI). The mechanical injection of semen into the womb of the female animal with a syringe-like apparatus.

Back hoe. A shovel mounted on the rear of a tractor, hydraulically operated to dig trenches or pits in soil.

Basic commodities. Six crops (corn, cotton, peanuts, rice, tobacco, and wheat) that are covered by legislated price support programs.

Biological control of pests. Control, but not total eradication, of insect pests achieved by using natural enemies, either indigenous or imported, or diseases to which the pest is susceptible. It includes such nontoxic pesticides as *Bacillus thuringiensis* (*Bt*).

Biologics. Immunization materials made from living or "killed" organisms and their products used for the detection and prevention of diseases; includes serums, vaccines, bacterins, antigens, and antitoxins.

Biotechnology. The use of technology, based on living systems, to develop processes and products for commercial, scientific, or other purposes. These include specific techniques of plant regeneration and gene manipulation and transfer (see also *genetic engineering*).

Blended credit. A form of export subsidy which combines direct government export credit and credit guarantees to reduce the effective interest rate.

Brucellosis A contagious disease in beef and dairy cattle, which causes abortion. Same disease in humans is known as undulant fever.

BST (bovine somatotropin) (also called BGH, for bovine growth hormone). A protein hormone produced naturally in the pituitary gland of cattle. Recombinant BST, or rBST, is BST produced using recombinant DNA biotechnology. BST controls the amount of milk produced by cows.

Cargo preference. A law that requires a certain portion of goods or commodities financed by the U.S. Government to be shipped on U.S. flag ships. The law has traditionally applied to P.L. 480 and other concessional financing or donations programs.

Carryover. Existing supplies of a farm commodity not used at the end of a marketing year, and remaining to be carried over into the next year. Marketing years generally start at the beginning of a new harvest for a commodity, and extend to the same time in the following year.

Cash grain farm. A farm on which corn, grain sorghum, small grains, soybeans, or field beans and peas account for at least 50 percent of value of products sold.

Census of Agriculture. A count taken by the U.S. Bureau of the Census every 5 years (including 1987 and 1992) of the number of farms, land in farms, crop acreage and production, livestock numbers and production, farm spending, farm facilities and equipment, farm tenure, value of farm products sold, farm size, type of farm, etc. Data are obtained for States and counties.

Checkoff programs. Research and promotion programs authorized by law and financed by assessments. The programs are paid for by specified industry members such as producers, importers, and handlers.

Combine. A self-propelled machine for harvesting grain and other seed crops. In one operation, it cuts, threshes, separates, and cleans the grain and scatters the straw.

Commodity certificates. Payments issued by the Commodity Credit Corporation (CCC) in lieu of cash payments to program participants. Holders of the certificates may exchange them with the CCC for CCC-owned commodities.

Commodity Credit Corporation (CCC). A federally owned and operated corporation within USDA. The CCC was created to stabilize, support, and protect farm income and prices through loans, purchases, payments, and other operations. The CCC functions as the financial institution through which all money transactions are handled for agricultural price and income support and related programs. The CCC also helps maintain balanced, adequate supplies of agricultural commodities and helps in their orderly distribution. The CCC does not have any operating personnel or facilities.

Complementary imports. Agricultural import items not produced in appreciable commercial volume in the United States, such as bananas, coffee, rubber, cocoa, tea, spices, and cordage fiber (see also *supplementary imports*).

Compost. Organic residues, or a mixture of organic residues and soil, which have been piled, moistened, and allowed to undergo biological decomposition for use as a fertilizer.

Concessional sales. Credit sales of a commodity in which the buyer is allowed more favorable payment terms than those on the open market. For example, Title I of the Food for Peace Program (P.L. 480) provides for financing sales of U.S. commodities with low-interest, long-term credit.

Conservation district. Any unit of local government formed to carry out a local soil and water conservation program.

Conservation plan. A combination of land uses and practices to protect and improve soil productivity and to prevent soil deterioration. A conservation plan must be approved by the local conservation district for acreage offered in the Conservation Reserve Program. The plan sets forth the conservation measures and maintenance that the owner or operator will carry out during the term of the contract.

Conservation practices. Methods which reduce soil erosion and retain soil moisture. Major conservation practices include conservation tillage, crop rotation, contour farming, stripcropping, terraces, diversions, and grassed waterways.

Conservation Reserve Program (CRP). A program authorized by the Food Security Act of 1985, designed to reduce erosion on 40-45

million acres of U.S. farmland. Under the program, producers who sign contracts agree to convert highly erodible cropland to approved conservation uses for 10 years. In exchange, participating producers receive annual rental payments and cash or payments-in-kind to share up to 50 percent of the cost of establishing permanent vegetative cover.

Conservation tillage. Any of several farming methods that provide for seed germination, plant growth, and weed control yet maintain effective ground cover throughout the years and disturb the soil as little as possible. The aim is to reduce soil loss and energy use while maintaining crop yields and quality. No-till is the most restrictive (soil-conserving) form of conservation tillage. Other practices include ridge-till, strip-till, and mulch-till.

Contour farming. Field operations such as plowing, planting, cultivating, and harvesting on the contour, or at right angles to the natural slope, to reduce soil erosion, protect soil fertility, and use water more efficiently.

Cooperative. An organization formed for the purpose of producing and marketing goods or products owned collectively by members who share in the benefits.

Cooperative Extension System. A system of State, local, and Federal organizations working together to provide practical educational services outside the classroom on agriculture, household management, and other topics. States participate mostly through their Land-Grant Universities, while the Federal partner is USDA's Extension Service.

Cost of production. The sum, measured in dollars, of all purchased inputs and other expenses necessary to produce farm products. Cost of production statistics may be expressed as an average per animal, per acre, or per unit of production (bushel, pound, or hundredweight) for all farms in an area or in the country.

County extension agent. A worker who is jointly employed by the county, State Cooperative Extension Service, and the U.S. Department of Agriculture's Extension Service, to bring agricultural and homemaking information to local people and to help them resolve farm, home, and community

problems. Also called extension agent, farm and home advisor, agricultural agent, extension home economist, and 4-H or youth agent.

Cover crop. A close-growing crop grown to protect and improve soils between periods of regular crops or between trees and vines in orchards and vineyards.

Crop rotation. The practice of growing different crops in recurring succession on the same land. Crop rotation plans are usually followed for the purpose of increasing soil fertility and maintaining good yields.

Crop year. The year in which a crop is harvested. For wheat, barley, and oats, the crop year is from June 1 to May 31. For corn, sorghum, and soybeans, it is from September 1 to August 31. For cotton, peanuts, and rice, the crop year is from August 1 to July 31.

Custom work. Specific farm operations performed under contract between the farmer and the contractor. The contractor furnishes labor, equipment, and materials to perform the operation. Custom harvesting of grain, spraying and picking of fruit, and sheep shearing are examples of custom work.

Deficiency payment. A payment made by the Commodity Credit Corporation to farmers who participate in wheat, feed grain, rice, or cotton programs. The payment rate is per bushel, pound, or hundredweight. It is based on the difference between the price level established by law (target price) and the higher of (1) the price support (loan) rate, and (2) the market price during a period specified by law.

Developing countries. Countries whose economies are mostly dependent on agriculture and primary resources and that do not have a strong industrial base. These countries generally have a gross national product below \$1,890 per capita (as defined by the World Bank in 1986). The term is often used synonymously with less-developed and underdeveloped countries.

Disaster payments. Federal payments made to farmers because of a natural disaster when (1) planting is prevented or (2) crop yields are abnormally low because of adverse weather and related conditions. Disaster payments may be provided under existing legislation or

under special legislation enacted after an extensive natural disaster.

Distance Education. Delivery of instructional material over a wide geographical area via one or more technologies, including video, computer, and laser.

DNA. Deoxyribonucleic acid, a polymeric chromosomal constituent of living cell nuclei, composed of deoxyribose (a sugar), phosphoric acid, and four nitrogen bases—adenine, cytosine, guanine, and thymine. It contains the genetic information for living organisms, and consists of two strands in the shape of a double helix. A gene is a piece of DNA.

Double crop. Two different crops grown on the same area in one growing season.

Dryland farming. A system of producing crops in semiarid regions (usually with less than 20 inches of annual rainfall) without the use of irrigation. Frequently, part of the land will lie fallow in alternate years to conserve moisture.

Erosion. The process in which water or wind moves soil from one location to another. Types of erosion are (1) **sheet and rill**—a general washing away of a thin uniform sheet of soil, or removal of soil in many small channels or incisions caused by rainfall or irrigation runoff; (2) **gully**—channels or incisions cut by concentrated water runoff after heavy rains; (3) **ephemeral**—a water-worn, short-lived or seasonal incision, wider, deeper and longer than a rill, but shallower and smaller than a gully; and (4) **wind**—the carrying away of dust and sediment by wind in areas of high prevailing winds or low annual rainfall.

Ethanol. An alcohol fuel that may be produced from an agricultural foodstock such as corn, sugarcane, or wood, and may be blended with gasoline to enhance octane, reduce automotive exhaust pollution, and reduce reliance on petroleum-based fuels.

Extra-long staple (ELS) cotton. Cottons having a staple length of 1-3/8 inches or more, according to the classification used by the International Cotton Advisory Committee. This cotton is also characterized by fineness and high-fiber strength, contributing to finer and stronger yarns needed for thread and higher valued fabrics. American

types include American Pima and Sea Island cotton.

Family Farm. An agricultural business which (1) produces agricultural commodities for sale in such quantities so as to be recognized as a farm rather than a rural residence; (2) produces enough income (including off-farm employment) to pay family and farm operating expenses, to pay debts, and to maintain the property; (3) is managed by the operator; (4) has a substantial amount of labor provided by the operator and family; and (5) may use seasonal labor during peak periods and a reasonable amount of full-time hired labor.

Farm. A tract or tracts of land, with improvements, available to produce crops or livestock, including fish. The Bureau of the Census defined a farm in 1978 as any place that has \$1,000 or more in gross sales of farm products per year.

Farm Credit System. The system made up of cooperatively owned financial institutions in districts covering the United States and Puerto Rico that finance farm and farm-related mortgages and operating loans. Institutions within each district specialize in farmland loans and operating credit, or lending to farmer-owned supply, marketing, and processing cooperatives. FCS institutions rely on the bond market as a source of funds.

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (P.L. 80-104). Signed June 25, 1947, this law required the registration of pesticide products to ensure that they meet stated health, safety, and environment criteria. Amendments to the law required previously registered pesticides to be reregistered by 1997 to meet updated standards. The Environmental Protection Agency, which administers FIFRA, can cancel registration of pesticides not meeting the required criteria, require label changes, or order immediate termination of use.

Federal land bank associations. Local farmer-owned organizations through which farmers obtain long-term (up to 40 years) loans on land. The associations are an integral part of the Farm Credit System.

Federal marketing orders and agreements. USDA is authorized to issue marketing orders and agreements for a variety of agricultural

commodities and their products. Marketing orders have been established for milk, fruits and vegetables, and other commodities. The orders may regulate the handling of fruits and vegetables in a variety of ways including limiting quantities that may be marketed, or establishing grade, size, maturity, or quality requirements.

Feed grain. Any of several grains most commonly used for livestock or poultry feed, including corn, grain sorghum, oats, rye, and barley.

Fertilizer. Any organic or inorganic material of natural or synthetic origin which is added to soil to provide nutrients, including nitrogen, phosphorus, and potassium, necessary to sustain plant growth.

FFA. An organization for high school students studying vocational agriculture.

Flood plains. Lowland and relatively flat areas adjoining inland and coastal waters, including floodprone areas of islands. This land includes, at a minimum, those areas that are subject to a 1 percent or greater chance of flooding in any given year.

The Food, Agriculture, Conservation, and Trade Act of 1990 (P.L. 101-624). Signed November 28, 1990, the 5-year farm bill continues to move agriculture in a market-oriented direction. It freezes minimum target prices and allows more planting flexibility. New titles include rural development, forestry, fruit and vegetable, grain quality, organic certification, global climate change, and commodity promotion programs.

Food grain. Cereal seeds most commonly used for human food, chiefly wheat and rice.

Forage. Vegetable matter, fresh or preserved, that is gathered and fed to animals as roughage; includes alfalfa hay, corn silage, and other hay crops.

Forward contracting. A method of selling crops before harvest by which the buyer agrees to pay a specified price to a grower for a portion, or all, of the grower's crops.

Fungicide. A chemical substance used as a spray, dust, or disinfectant to kill fungi infesting plants or seeds.

Futures contract. An agreement between two people, one who sells and agrees to deliver and one who buys and agrees to

receive a certain kind, quality, and quantity of product to be delivered during a specified delivery month at a specified price.

Genetic engineering. Genetic modification of organisms by recombinant DNA, recombinant RNA, or other specific molecular gene transfer or exchange techniques.

Genome. All the genetic material in the chromosomes of a particular organism.

Gleaning. Collecting of unharvested crops from the fields, or obtaining agricultural products from farmers, processors, or retailers without charge.

Gopher. The Internet Gopher client/server is a distributed information delivery system around which a campuswide information system can readily be constructed. While providing a delivery vehicle for local information, Gopher facilitates access to other Gopher and information servers throughout the world.

Grade A milk. Milk, also referred to as fluid grade, produced under sanitary conditions that qualify it for fluid (beverage) consumption. Only Grade A milk is regulated under Federal milk marketing orders.

Grade B milk. Milk, also referred to as manufacturing grade, not meeting Grade A standards. Less stringent standards generally apply.

Grafting. The process of inserting a scion of a specified variety into a stem, root, or branch of another plant so that a permanent union is achieved.

Great Plains. A level to gently sloping region of the United States that lies between the Rockies and approximately the 98th meridian. The area is subject to recurring droughts and high winds. It consists of parts of North Dakota, South Dakota, Montana, Nebraska, Wyoming, Kansas, Colorado, Oklahoma, Texas, and New Mexico.

Green manure. Any crop or plant grown and plowed under to improve the soil, by adding organic matter and subsequently releasing plant nutrients, especially nitrogen.

Ground water. Water beneath the Earth's surface between saturated soil and rock, which supplies wells and springs.

Hedgerow. Trees or shrubs grown closely together so that branches intertwine to form a continuous row.

Herbicide. Any agent or chemical used to destroy plants, especially weeds.

Humus. The well decomposed, relatively stable portion of the partly or wholly decayed organic matter in a soil, which provides nutrients and helps the soil retain moisture.

Hydroponics. Growing of plants in water containing dissolved nutrients, rather than in soil. This process is being used in greenhouses for intensive off-season production of vegetables.

Infrastructure. The transportation network, communications systems, financial institutions, and other public and private services necessary for economic activity.

Integrated crop management. An agriculture management system that integrates all controllable agricultural production factors for long-term sustained productivity, profitability, and ecological soundness.

Integrated pest management (IPM). The control of pests or diseases by using an array of crop production strategies, combined with careful monitoring of insect pests or weed populations and other methods. Some approaches include selection of resistant varieties, timing of cultivation, biological control methods, and minimal use of chemical pesticides so that natural enemies of pests are not destroyed. These approaches are used to anticipate and prevent pests and diseases from reaching economically damaging levels.

International trade barriers. Regulations used by governments to restrict imports from other countries. Examples include tariffs, embargoes, import quotas, and unnecessary sanitary restrictions.

Internet. The global connection of interconnected local, mid-level, and wide-area automated information/communications networks.

Land-Grant universities. Institutions, including State colleges and universities and Tuskegee University, eligible to receive funds under the Morrill Acts of 1862 and 1890. The Federal Government granted land to each State and territory to encourage practical education in agriculture, homemaking, and mechanical arts.

Land-use planning. Decisionmaking process to determine present and future uses of land. The resulting plan is the key element of a comprehensive plan describing recommended location and intensity of development of public and private land uses such as residential, commercial, industrial, recreation and agricultural.

Leaching. The process of removal of soluble materials by the passage of water through soil.

Legumes. A family of plants that includes many valuable food and forage species such as peas, beans, soybeans, peanuts, clovers, alfalfas, and sweet clovers. Legumes can convert nitrogen from the air to nitrates in the soil through a process known as nitrogen fixation. Many of these species are used as cover crops and are plowed under for soil improvement.

Lint. Cotton fiber remaining after the seeds have been ginned out.

Loan deficiency payments. Commodity Credit Corporation payments provided to producers who, although eligible to obtain a marketing loan for a wheat, feed grains, upland cotton, rice, or oilseed crop, agree to forgo obtaining the loan. The payment is determined by multiplying the loan payment rate by the amount of commodity eligible for loan. The payment rate per unit is the announced loan level minus the repayment level used in the marketing loan.

Loan rate (also called price support rate). The price per unit (bushel, bale, pound, or hundredweight) at which the Commodity Credit Corporation will provide loans to farmers enabling them to hold their crops for later sale.

Low-Input Sustainable Agriculture (LISA). Alternative methods of farming that reduce the application of purchased inputs such as fertilizer, pesticides, and herbicides. The goals of these alternative practices are to diminish environmental hazards while maintaining or increasing farm profits and productivity. Methods include crop rotations and mechanical cultivations to control weeds; integrated pest management strategies such as introducing harmless natural enemies; planting legumes that transform nitrogen from the air into a form plants can use; appli-

cation of livestock manures, municipal sludge, and compost for fertilizer; and over-seeding of legumes into maturing fields of grain crops, or as post-season cover crops to curtail soil erosion.

Market basket of farm foods. Average quantities of U.S. farm foods purchased annually per household in a given period. Retail cost of these foods used as a basis for computing an index of retail prices for domestically produced farm foods. Excluded are fishery products, imported foods, and meals eaten away from home.

Marketing spread. The difference between the retail price of a product and the farm value of the ingredients in the product. This farm-retail spread includes charges for assembling, storing, processing, transporting, and distributing the products.

Marketing year. Year beginning at harvest time during which a crop moves to market.

Metropolitan statistical area (MSA). A county or group of contiguous counties that contain at least one city of 50,000 inhabitants or more, or twin cities with a combined population of at least 50,000. In addition, contiguous counties are included in an MSA if they are socially and economically integrated with a central city.

Migrant farmworker. A person who travels across State or county boundaries to do agricultural work of a seasonal or other temporary nature, and who is required to be absent overnight from his or her permanent place of residence. Exceptions are immediate family members of an agricultural employer or a farm labor contractor, and temporary foreign workers.

National forest. A Federal reservation dedicated to protection and management of natural resources for a variety of benefits—including water, forage, wildlife habitat, wood, recreation, and minerals. National forests are administered by USDA's Forest Service, while national parks are administered by the Interior Department's National Park Service.

National grassland. Land, mainly grass and shrub cover, administered by the Forest Service as part of the National Forest System for promotion of grassland agriculture, watersheds, grazing wildlife, and recreation.

Nematode. Microscopic soil worm, which may attack root or other structures of plants and cause extensive damage.

Net farm income. A measurement of the profit or loss associated with a given year's production. It is an approximation of the net value of agricultural production, regardless of whether the commodities were sold, fed, or placed in inventory during the year. Net farm income equals the difference between gross farm income and total expenses. It includes nonmoney items such as depreciation, the consumption of farm-grown food, and the net imputed rental value of operator dwellings. Additions to inventory are treated as income.

Network. A group of machines connected together so they can transmit information to one another. There are two kinds of networks: local networks and remote networks.

Nitrogen. A chemical element essential to life and one of the primary plant nutrients. Animals get nitrogen from protein feeds; plants get it from soil; and some bacteria get it directly from air.

Nonfarm income. Includes all income from nonfarm sources (excluding money earned from working for other farmers) received by farm operator households.

Nonpoint source pollution. Pollutants that cannot be traced to a specific source, including stormwater runoff from urban and agricultural areas.

Nonprogram crops. Crops—such as potatoes, vegetables, fruits, and hay—that are not included in Federal price support programs.

Nonrecourse loans. The major price support instrument used by the Commodity Credit Corporation to support the price of wheat, feed grains, cotton, rice, honey, sugar, peanuts, and tobacco. Farmers who agree to comply with all commodity program provisions may pledge a quantity of a commodity as collateral and obtain a loan from the CCC. The borrower may elect either to repay the loan with interest within a specified period and regain control of the collateral commodity, or to forfeit it to the CCC. In case of a forfeiture, the borrower forfeits without penalty the collateral to the CCC and the CCC accepts it as satisfaction of the loan. This includes the accumulated interest,

regardless of the price of the commodity in the market at the time of forfeiture.

Normal flex acreage. This provision of the Omnibus Budget Reconciliation Act of 1990 (P.L. 101-508) requires a mandatory 15-percent reduction in payment acreage. Under this provision, producers are ineligible to receive deficiency payments on 15 percent of their crop acreage base (not including any acreage removed from production under any production adjustment program). Producers, however, are allowed to plant any crop on this acreage, except fruits and vegetables.

Nutrient. A chemical element or compound that is essential for the metabolism and growth of an organism.

Off-farm income. Includes wages and salaries from working for other farmers, plus non-farm income, for all owner operator families (whether they live on a farm or not).

Oilseed crops. Primarily soybeans, and other crops such as peanuts, cottonseed, sunflower seed, flaxseed, safflower seed, rapeseed, sesame seed, castor beans, canola, rapeseed, and mustard seeds used to produce edible and/or inedible oils, as well as high-protein animal meal.

Oilseed meal. The product obtained by grinding the cakes, chips, or flakes that remain after most of the oil is removed from oilseeds. Used as a feedstuff for livestock and poultry.

Optional flex acreage. Under the planting flexibility provision of the 1990 Farm Act, producers can choose to plant up to 25 percent of the crop acreage base to other Commodity Credit Corporation-specified crops (except fruits and vegetables) without a reduction in crop acreage bases on the farm, but receiving no deficiency payments on this acreage. The Omnibus Budget Reconciliation Act of 1990 (P.L. 101-508) made a 15-percent reduction in payment acreage mandatory. The remaining 10 percent is the optional flex acreage.

Organic farming. There is no universally accepted definition, but in general organic farming is a production system which avoids or largely excludes the use of synthetically compounded fertilizers, pesticides, growth regulators, and livestock feed additives. To the maximum extent feasible, organic farming systems rely on crop rotation, crop residues, animal manures, legumes, green

manure, off-farm organic wastes, mechanical cultivation, mineral bearing rocks, and aspects of biological pest control to maintain soil productivity and tilth, to supply plant nutrients and to control weeds, insects, and other pests.

Parity. Equality in the present purchasing power of a unit (bushel, cwt) of a product compared with its purchasing power during the period 1910-14. Parity price for any commodity equals its 10-year average price multiplied by the ratio of the current Parity Index compared to the 10-year average of Prices Received Index. The Parity Index reflects prices paid by farmers for items of production and family living, including interest, taxes, and wage rates. Both Parity Index and Prices Received Index are expressed on a base of 1910-14 equaling 100. The near threefold gains in farm productivity are not reflected in parity prices.

Parity Ratio. A measure of relative purchasing power of farm products. The ratio between index of prices received by farmers for all farm products and index of prices paid by farmers for commodities and services used in farm production and family living. The parity ratio measures price relationships (prices received and prices paid). It does not measure farm income or farmers' total purchasing power. It does not reflect farmers' off-farm income, Government payments, or farmers' assets.

Payment limitations. Limitations set by law on the amount of money any one person may receive in Federal farm program payments each year under the feed grain, wheat, cotton, rice, and other farm programs.

Percolation. The downward movement of water through soil under the influence of gravity.

Plant germplasm. Living material such as seeds, rootstock, or leaf plant tissue from which new plants can grow.

Pomology. The science or study of growing fruit.

Price index. An indicator of average price change for a group of commodities that compares price for those same commodities in some other period, commonly called the base period.

Price support level. The price for a unit of a farm commodity (bushel, pound) that the Government will support through price-support loans, purchases, and/or payments. Price support levels are determined by law and are set by the Secretary of Agriculture.

Price support programs. Government programs that aim to keep farm prices received by participating producers from falling below specific minimum levels. Price support programs for major commodities are carried out by providing loans and purchase agreements to farmers so that they can store their crops during periods of low prices. The loans can later be redeemed if commodity prices rise sufficiently to make the sale of the commodity on the market profitable, or the farmer can forfeit the commodity to the Commodity Credit Corporation (CCC). With a purchase agreement, the producer may sell the commodity to the CCC.

Production Credit Associations. Lending groups, owned by their farmer-borrowers, that provide short and intermediate-term loans for up to 10 years from funds obtained from investors in money markets. These associations are an integral part of the Farm Credit System.

Productive capacity. The amount that could be produced within the next season if all the resources currently available were fully employed using the best available technology. Productive capacity increases whenever the available resources increase or the production of those resources increases.

Productivity. The relationship between the quantity of inputs (land, labor, tractors, feed, etc.) employed and the quantity of outputs produced. An increase in productivity means that more outputs can be produced from the same inputs or that the same outputs are produced with fewer inputs. Both single-factor and multifactor indexes are used to measure productivity. Single-factor productivity indexes measure the output per unit of one input at the same time other inputs may be changing. Multifactor productivity indexes consider all productive resources as a whole, netting out the effects of substitution among inputs. Crop yield per acre, output per work hour, and livestock production per breeding animal are all single-factor productivity indi-

cators. The Total Farm Output per Unit of Input Index is a multifactor measure.

Public Law 480 (PL-480). Common name for the Agricultural Trade Development and Assistance Act of 1954, which seeks to expand foreign markets for U.S. agricultural products, combat hunger, and encourage economic development in developing countries. Title I of the Food for Peace Program, as it is called, makes U.S. agricultural commodities available through long-term dollar credit sales at low interest rates for up to 40 years. Donations for emergency food relief needs are provided under Title II. Title III authorizes "food for development" grants.

Rangeland. Land which is predominantly grasses, grasslike plants, or shrubs suitable for grazing and browsing. Rangeland includes natural grasslands, savannahs, many wetlands, some deserts, tundra, and certain shrub communities. It also includes areas seeded to native or adapted and introduced species that are managed like native vegetation.

Renewable resources. Resources such as forests, rangeland, soil, and water that can be restored and improved.

Riparian rights. Legal water rights of a person owning land containing or bordering on a water course or other body of water in or to its banks, bed, or waters.

RNA (ribonucleic acid). A molecule similar to DNA that functions primarily to decode instructions for protein synthesis that are carried by genes.

Ruminant. Animal having a stomach with four compartments (rumen, reticulum, omasum, and abomasum). Their digestive process is more complex than that of animals having a true stomach. Ruminants include cattle, sheep and goats, as well as deer, bison, buffalo, camels, and giraffes.

Rural. An area that has a population of fewer than 2,500 inhabitants and is outside an urban area. A rural area does not apply only to farm residences or to sparsely settled areas, since a small town is rural as long as it meets the above criteria.

Saline soil. A soil containing enough soluble salts to impair its productivity for plants.

Set-aside. The acreage a farmer must devote to soil conserving uses (such as grasses, legumes, and small grain that is not allowed to mature), in order to be eligible for production adjustment payments and price-support loans and purchases.

Silage. Prepared by chopping green forage (grass, legumes, field corn, etc.) into an airtight chamber, where it is compressed to exclude air and undergoes an acid fermentation that retards spoilage. Contains about 65 percent moisture.

Silviculture. A branch of forestry dealing with the development and care of forests.

Sodbuster. A provision authorized by the Food Security Act of 1985 which is designed to discourage the conversion of highly erodible land from extensive conserving uses to intensive agricultural production. If highly erodible grassland or woodland is used for crop production without appropriate conservation measures, producers may lose eligibility for participation in many USDA programs.

Staple. Term used to designate length of fiber in cotton, wool, or flax.

State Agricultural Experiment Station.

State-operated institutions, established under the Hatch Act of 1887 and connected to land-grant universities in each State, which carry out research of local and regional importance in the areas of food, agriculture, and natural resources.

Stubble mulch. A protective cover provided by leaving plant residues of any previous crop as a mulch on the soil surface when preparing for the following crop.

Subsistence farm. A low-income farm where the emphasis is on production for use of the operator and the operator's family rather than for sale.

Supplementary imports. Farm products shipped into this country that add to the output of U.S. agriculture. Examples include cattle, meat, fruit, vegetables, and tobacco (see *complementary imports*).

Sustainable agriculture. An integrated system of plant and animal production practices having a site-specific application that will, over the long term, satisfy food and fiber needs; enhance environmental quality and

natural resources; make the most efficient use of nonrenewable resources and on-farm resources; integrate natural biological cycles and controls; sustain the economic viability of farm operations; and enhance the quality of life.

Swampbuster. This provision was authorized by the Food Security Act of 1985; it discourages the conversion of natural wetlands to cropland use. With some exceptions, producers converting a wetland area to cropland may lose eligibility for many USDA program benefits.

Target prices. A price level established by law for wheat, corn, sorghum, barley, oats, rice, and upland and extra-long-staple cotton. Farmers participating in Commodity Credit Corporation commodity programs receive the difference between the target price and either the market price during a period prescribed by law or the price support (loan) rate, whichever is higher.

Terminal market. A metropolitan market that handles all agricultural commodities.

Tissue culture. The technique of growing a whole plant from a single engineered cell or piece of plant tissue.

Unit cost. The average cost to produce a single item. The total cost divided by the number of items produced.

Upland cotton. A fiber plant developed in the United States from stock native to Mexico and Central America. Includes all cotton grown in the continental United States except Sea Island and American Pima cotton. Staple length of upland cotton ranges from 3/4 inch to 1 1/4 inches.

Urban. A concept defining an area that has a population of 2,500 or more inhabitants.

Vegetative cover. Trees or perennial grasses, legumes, or shrubs with an expected lifespan of 5 years or more.

Viticulture. The science and practice of growing grapes.

Watershed. The total land area, regardless of size, above a given point on a waterway that contributes runoff water to the flow at that point. A major subdivision of a drainage basin. The United States is generally divided into 18 major drainage areas and 160 principal

river drainage basins containing some 12,700 smaller watersheds.

Water table. The upper limit of the part of the soil or underlying rock material that is wholly saturated with water.

Wetlands. Land that is characterized by an abundance of moisture and that is inundated by surface or ground water often enough to support a prevalence of vegetation typically adapted for life in saturated soil conditions.

Wholesale price index. Measure of average changes in prices of commodities sold in primary U.S. markets. "Wholesale" refers to sales in large quantities by producers, not to prices received by wholesalers, jobbers, or distributors. In agriculture, it is the average price received by farmers for their farm commodities at the first point of sale when the commodity leaves the farm.

Zoonotic diseases. Diseases that, under natural conditions, are communicable from animals to humans.

4-H. Club for young people (9-19 years old) sponsored by the Agricultural Extension Service to foster agricultural, homemaking, and other skills. The 4 H's stand for Head, Heart, Hands, and Health.

0/92. A USDA acreage diversion program provision that allows wheat and feed grain producers to devote all or a portion of their permitted acreage to conserving uses and receive deficiency payments on that acreage. The program makes deficiency payments for a maximum of 92 percent of a farm's maximum payment acreage. Under other types of acreage diversion programs, such as acreage reduction programs, producers cannot receive deficiency payments unless permitted acres are devoted to producing a crop.

50/92. A USDA acreage diversion program provision that allows cotton and rice growers who plant at least 50 percent of their permitted acreage to receive 92 percent of their deficiency payments under certain conditions.

1890 Land-Grant Colleges and

Universities and Tuskegee University.

Historically Black land-grant colleges and universities. Through the Act of August 30, 1890, and several other authorities, these institutions may receive Federal funds for agricultural research, extension, and teaching.

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